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MEDICAL COMMUNICATIONS

OF THE

MASSACHUSETTS MEDICAL SOCIETY.

WITH AN APPENDIX,

CONTAINING THE PROCEEDINGS OF THE SOCIETY.

VOLUME VII.

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ARTICLE I.

A MEDICAL HISTORY

OF THE COUNTY OF FRANKLIN, IN THE COMMONWEALTH OF MASSACHUSETTS.

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[Read at the Annual Meeting, May 25, 1842.]

Gentlemen,

I ought, perhaps, to apologize for appearing before you at this time, for the first time since I was elected a Fellow of this Society in the year 1817, a period of twenty-five years, or a quarter of a century; I certainly ought to feel myself peculiarly honored in the choice you have made of me for your speaker on this anniversary, after this apparent neglect.

Although it has never been convenient for me to attend your annual meetings, I trust I have not been wanting in activity and zeal, in the promotion of the grand and philanthropic objects of this highly useful and respectable Society. I trust I have been behind but few of the members of this Institution in my at-

tempts to advance the great objects of it. As a counsellor and censor, which offices I have held through your politeness for many successive years, I have endeavored to discharge my duties with fidelity and zeal, and as a member of various committees upon which you have appointed me, I have also labored to subserve the interests of the Society. In my offices of a public teacher of Medicine in the States of Massachusetts, New York, Ohio, and New Hampshire, I have held up the Society as a pattern for imitation, and have always spoken of it as decidedly the best model of a Medical Society of any in the Union. This opinion I have also expressed to many distinguished medical gentlemen in various parts of our country and abroad. I have also used my best endeavors to induce most of our respectable medical men in various parts of the State to unite themselves with us. I trust I have not been an inactive observer of the momentous concerns of our Association.

You have already been presented with a history of the Society in the interesting and instructive address of Dr. Alden, and from various other sources. I shall not, therefore, enter into the statistics of it. I cannot, however, refrain from mentioning a few facts, showing the state of the Society, from the period of its establishment in 1781 to the year 1817, when I became a Fellow, and from that period to the commencement of the year 1842.

Before the year 1817 there had been admitted two hundred and ninety-nine Fellows, twenty-six of whom removed from the State, and thirty-five honorary mem-

bers, making in all three hundred and forty-four. Of the fellows, sixty-nine have died, and fifteen honorary members who have died previous to that time, making in all eighty-four, which, deducted from three hundred and forty-four, leaves two hundred and sixty. Thirty-eight, who were admitted previous to the year 1817, have resigned, and the twenty-six who have removed, leaves the number now residing in the State, who were elected before that time, one hundred and ninety-six.

The whole number of Fellows who have been admitted into the Society since its organization, to the last anniversary in 1841, including ninety-eight honorary members, is twelve hundred and twenty-eight. Three hundred and forty-six, including thirty-nine honorary members, have died. Forty-seven have resigned, and one hundred and twenty-seven have removed from the State, making in all five hundred and ten, which, deducted from twelve hundred and twenty-eight, leaves seven hundred and eighteen regular members now living in Massachusetts. According to Hayward's Massachusetts Gazetteer, published in 1835, the whole number of physicians in the State that year was seven hundred and eighty. His list was somewhat imperfect, and I think the enumeration too small. From some observation on this subject, I think there may be about one thousand at this time in the State, besides empirics. This would leave but two hundred and eighty-two, who do not belong to the Society. This certainly shows a very flattering state of our Association.

Of those who have died, one was 100 years of age; thirty-one were over 80; fifty between 70 and 80; thirty-eight between 60 and 70; thirty-two between 40 and 50; thirty-two between 30 and 40; and six between 20 and 30.

Among the retired members is Dr. Oliver Partridge, of Stockbridge, now living, near the age of 91, and in tolerably vigorous health. He still, occasionally, practises our profession. I received a letter of consultation from him on a medical case a short time ago. He united himself with this Society in the year 1785, and resigned in 1803. Such instances of longevity are rare, and worthy of record. Others may be found of a similar nature.

I might dwell with pleasure upon this interesting topic, but another theme must now engage our attention. I have selected a slight medical history of the county of Franklin, in this State, as the subject of the ensuing discourse. It may appear trivial to some; but, in the language of the late eccentric, but learned Dr. Mitchell, of New York, "Chorographical accounts of particular regions and districts are valuable portions of knowledge. They are the parts which by addition make up the whole. The modern term of statistics has been applied to this subject, meaning thereby a description of a place in its actual condition, or just as it is." I may add such as it has heretofore been. The ocean consists of drops, and minute portions of any thing constitute the grand whole. If every physician in our country would give a medical history of the town in which he resides, we should have a much

more perfect and interesting professional account than we now possess.

The county of Franklin, you are aware, lies near the north-western border of the State. Its dimensions are small, as it contains but twenty-six towns, not far from six miles square upon an average. By the late census, it contained not far from thirty thousand inhabitants. With the exception of a few intervals on the banks of our rivers, the surface of the country is rough, and some of the spurs of Hoosac mountain are here, probably, from ten to fourteen hundred feet high. On the banks of Connecticut and Deerfield rivers, which run a considerable distance in the county, and particularly in the valleys of these rivers, and some of their tributary streams, the soil is principally alluvial. The rest of the county is mountainous, and the soil chiefly of a granitic character.

Connecticut river passes directly through the centre of the county, and in all its sinuosities and windings it washes its banks for about twenty-five miles on each side of it. On the banks of Deerfield river, also, at Deerfield, is an extensive alluvial tract of several thousand acres, which was formerly the bed of a lake. There are, also, several other alluvions on the banks of the smaller streams. The whole of the alluvion in the county of Franklin, however, does not, probably, exceed one thirtieth-part of the area of the soil within her borders. Yet, these alluvial tracts are vastly more densely populated, than the more elevated portions of the county. The rest of the county is on elevated hills and mountains. The diseases of the

hills and of the valleys are somewhat different in their character. Hence, the reason of the above apparently minute description.

Climate has an immense influence upon the character of diseases. In the climate of this county we have all the varieties which are found in the northern and southern sections of the Union. The thermometer, according to journals which have been kept in various parts of the United States, in Canada, and in this county, shows that we have as high and as low degrees of heat and cold as are to be found in Florida, or Nova Scotia, though by no means of so long continuance. I have seen a good thermometer stand in Deerfield, in the shade, as high as 96° above zero, and as low as 25° below that point. These degrees, however, are not commonly indicated by the mercury. It is not very common in any season for the mercury to rise much above 90° above zero, or to sink much below 25° below that point. The tables (which I append in a note) will show the mean degrees of heat and cold in Deerfield for one year. (See Note A.) Deerfield lies in nearly a central position in the county, but as the notes were taken in the valley, they may indicate too great a degree of cold, as it has been shown that valleys are colder than mountainous regions,—though the excess of winds on the mountains often makes those elevations appear to be colder than the thermometer actually indicates. Deerfield is in latitude 42° 32′; longitude 72° 41′ west from Greenwich.

During the latter part of spring, the whole of summer, and the early part of autumn, the climate here is delightful; and a summer residence upon our mountains might be made more salubrious and pleasant for the invalid, with affections of the lungs, than at our most celebrated watering-places, or even at the thermal springs in Virginia. I often recommend such retreats to the consumptive from our cities, and I have seen much amendment in such cases from inhaling the pure air of the Hoosac and its spurs. Frosts usually occur here about the middle of September, and continue in some parts of the county till the middle of May. They are rarely, however, severe in either of these months. Winter rarely commences with severity before the middle of December, and our snow usually leaves us about the middle of March. I have, however, known snow to fall on the last week in November, and to lie on the ground till the middle of April. Sleighs have run here in six successive months. This, however, is a rare occurrence. More frequently we do not have three months of good sleighing in the course of a year. I have known people cross Deerfield river upon the ice for six months in succession,—while, generally, we cannot cross it in this way more than two months in the year. The subjoined table will show the quantity of snow which has fallen in 19 years in Deerfield. Probably more has fallen upon our western mountains. (See Note B.)

Climate, too, has much to do, probably, in the production of medicinal plants, as well as of other

vegetable substances. If it is true, that the season is not sufficiently long for the perfection of some of our poisonous plants, as well as those whose properties are not deleterious; it is equally true, that very many valuable medicinal plants arrive at a great degree of perfection even in our variable climate. Already great discoveries have been made in the vegetable Materia Medica of Massachusetts. Much yet remains to be done; and the future investigator of this important department of science will be stimulated to increased exertions in this fascinating branch of knowledge, by the discoveries which he cannot fail of making in the course of his researches and inquiries. In the language of our great exemplar in the science of medicine, the late lamented Dr. Rush, "I have no doubt but there are many hundred undiscovered medicinal plants, which now exhale invaluable healing virtues in the desert air." The county of Franklin is prolific in vegetable substances employed as medicines. I hardly know a more interesting botanical field than Deerfield meadows. They are the basin which receives the deposits and the wash of Deerfield river and its tributary streams which flow from Hoosac mountain; and leave the seeds of various plants from that almost alpine region of country, to germinate in the prolific soil of our fertile alluvion. Our mountains, too, are rich in botanical productions. We have valuable *cathartics*, in the Eupatorium perfoliatum, Juglans cinerea, Rhamnus catharticus, and several species of Convolvulus. *Emetics* in Sanguinaria Canadensis, Apocynum androsæmifolium and cannabinum, Lobelia

inflata, &c., &c. Among our astringents may be mentioned the Alnus serrulata, the Erigeon Canadense, Geranium maculatum, Lycopus Virginianus, Quercus, of which, we have a number of species, Spiræa tormentosa, &c. We have no purer demulcents in the Materia Medica than those obtained from the Ulmus Americana, the Viola ovata, the Osmunda regalis, &c., &c. Some of our most valuable diuretics are the Eupatorium pupureum, Galium aparine and asprellum, Gaultheria procumbens, Mitchella repens, Chimaphila umbellata, and many others, too numerous to mention. I could occupy many hours in the detail of them, but shall merely refer to a more particular enumeration of them in a note. (Note C.)

Diseases, Epidemics, &c.—The county of Franklin was thinly inhabited for nearly three quarters of a century, after the first settlers planted themselves upon its soil. Deerfield was first settled in 1672, and was incorporated in 1682. The pioneers of the forest were so much annoyed by the Indians that they hardly obtained permanent foothold here before the commencement of the year 1700. At the time of the destruction of the town by the French and Indians, in 1703–4, there were four hundred and eighty inhabitants in this town. About one hundred and sixty of these were either killed or carried away captive to Canada. Settlements in this section of the country progressed tardily after that gloomy period. From 1682 to 1753 there were but two other towns incorporated in this county, viz., Northfield in 1715, and Sunderland in 1718, and there were but few in-

habitants in either of these places. From 1753 to 1775 but twelve other towns were incorporated in this county. I believe my grandfather, Dr. Thomas Williams, was the first regular physician who ever established himself in this county. He settled in Deerfield in the year 1739, since which time, himself, his son, Dr. William Stoddard Williams, and myself have practised the profession of medicine in this town for a period of more than one hundred years.

I am not able to give an exact chronological history of our epidemics since the year 1735. That year, I have learned from veracious accounts, the scarlet fever, which so extensively ravaged the coasts and interior towns in New England, and was so fatal as to be called "the plague among children," prevailed here to a considerable extent. It was again rife here in 1742. The winter of 1740–41 was the coldest ever known in America. A great many cattle perished from scarcity of fodder. Sickly seasons have often occurred after severe alternations of weather. I have no very accurate data upon which I can absolutely depend in relation to the dates of epidemic diseases here for a considerable period of time. As nearly as I can obtain information, the measles and canker-rash prevailed here in 1750. The dysentery prevailed here in 1751. The canker-rash was also prevalent here in 1756. The lung fever, as it was called, prevailed here in 1775. Although it is probable that many cases of this complaint occurred here almost every year, yet I shall only mention the times when it existed here with the greatest violence. The

treatment of fever now is very different from what it was seventy-five years ago. It is now a very uncommon thing to see a case of fever run from sixty to ninety days before it comes to a crisis, as it often did then. Instead of smothering patients under bed-clothes, and confining them in close apartments, excluding every particle of air, and, as much as possible, of light, as was the practice at that time, we allow them the greatest abundance of air, and give them a liberal allowance of cold water. Mercury was not then employed in such quantities as at the present time. In consequence of the improvements which have been made in the practice in fevers, they are not now, as formerly, considered to be the greatest outlets of human life. Fevers, however, on account of their causes being in a great measure removed, are not so common now, as formerly.

In 1777, the small-pox prevailed in the town of Deerfield, and a pest-house, or hospital, was established in a remote part of the town. It was supposed that it originated or was taken from some of the troops of the American revolutionary army, as they were often passing through this town, and as that complaint was almost constantly prevalent among them. The dysentery also prevailed extensively here at the same time, and also at Greenfield, Shelburne and Conway. At the latter place there were 73 deaths from it that season. Conway, at that time, could not have contained more than 1000 inhabitants. Willard, in his History of Greenfield, says, "In 1777 a great sickness prevailed here (Greenfield) and at Shel-

burne; fifty died in Greenfield, and eighty in Shelburne." The population of Greenfield at that time was, probably, about 900, and of Shelburne, about 700; so that it, indeed, might be called "a pestilence which walked at noonday." The canker-rash prevailed extensively in Deerfield, and in some other towns in this county, from 1792 to 1795. Intermittent fevers also prevailed in Deerfield about the year 1794, in consequence of the erection of a dam across Deerfield river at Stebbins's meadow. This complaint had prevailed extensively in this town for several previous years, but in consequence of the drying up of the marshes by cultivating the soil, no cases have originated here since the commencement of the 19th century. In 1789, '90, '91, and '92, the scarlet fever and canker-rash prevailed at Rowe. The canker-rash prevailed in Hawley in 1794, and in 1830. It also prevailed in the adjoining town of Plainfield, in 1794, and in Buckland, to a considerable extent, in 1838. The dysentery prevailed extensively in Warwick, in 1822 and 1824. Eleven died of this complaint in the former year, and sixteen in the latter.

Since the commencement of the 19th century, I have been able to procure rather more definite information in relation to the epidemics of the county,—though I am still deficient in data in relation to many of them. In 1802, the malignant epidemic dysentery prevailed at Greenfield and in Shelburne. The population of Greenfield at that time was not far from 1300. The whole number of deaths there that year was 68; fifty-seven died of the dysentery, and most

of these were young people. The population of Shelburne at that time was not far from 1100. Thirty-four died that year in that town. The dysentery also prevailed extensively at Springfield. The mortality was so great that season from the dysentery, in Greenfield, that the stores were generally shut, and business of almost all kinds was suspended. There were scarcely well people enough to take care of the sick. Travellers avoided the place as much as possible,—and many who passed through the town tied mufflers over their faces to prevent inhaling infectious matter. Several families removed from the town, and particularly their children. Willard says, "One hundred and one persons went away to other places in consequence of the sickness; and at one period there was not an inhabited house in the place where there was not one or more sick or dead. Five coffins were made on one Sabbath day alone! Some families lost five, some three, and some lost all their children. The first death occurred July 18th. Doctors Wells and Stone attributed the sickness to a scarcity of fruit so necessary in hot weather, to correct the bile, and to a putrid atmosphere occasioned by a great flood in June, that left stagnant water on the low lands, which by the intense heat of the weather, and being blown hither by the southerly winds, affected the air so sensibly as that its insalubrity might plainly be perceived by any one walking abroad in the evening." On the 16th of August the wind blew up from the north-west, the rain fell copiously, the heat was mitigated, and most of the sick were recovering.

In the spring of 1803 the measles prevailed at Deerfield as an epidemic. It was followed in the summer by one of the most severe and mortal dysenteries which ever prevailed in this part of the world, in proportion to the number of inhabitants. It prevailed also in Conway and Northfield almost to as great an extent as at Deerfield, and likewise at Northampton, in the county of Hampshire, about sixteen miles south. I am not able to obtain the number of deaths in the two latter places, from it; but in Conway the whole number of deaths in 1803 was eighty-four, sixty of which were from the dysentery. Conway then contained not far from two thousand inhabitants. Why it should have prevailed in Greenfield, Shelburne and Springfield, and not in Deerfield, Conway, Northfield, and Northampton the same years is to me inexplicable. The weather in 1803 was hot and sultry, attended with a great many very severe thunder showers. It commenced at Deerfield in the month of June, much earlier in the season than that complaint usually begins, and did not terminate till after the severe frosts in November. What was very singular was, that almost every patient who was attacked with the dysentery, after having had the measles, died of that complaint. The disease in Deerfield was confined principally to the main street, then containing, probably, about three hundred and fifty inhabitants. There were but few cases in the remote parts of the town. The number of inhabitants that year in the whole of the town was, probably, not far from 1400. There were sixty-five deaths in this

town that year; and fifty-four, at least, of these were from the dysentery. As in Greenfield the year before, whole families sent their children abroad, and but few of them, who were thus sent away, were attacked with the complaint.

When we reflect that the disorder did not spread much out of the main street, and that it was confined almost to a population of not over five hundred, we come to the conclusion, that it was almost as fatal as the yellow fever in Philadelphia, in the year 1793, in proportion to the number of inhabitants. Its ravages were more fatal among infants than adults. It was not uncommon to see two and sometimes three funerals a day in one street, for several weeks in succession. It was of a very malignant and typhoid character, and seemed to yield to no remedies. I was then a youth, and, of course, was not much acquainted with the details of practice in this complaint at that time. I understood, however, that the mercurial practice was the most effectual.

In the latter part of the summer and beginning of the autumn of 1807, the *spotted fever*, as it was then called, prevailed at Deerfield and at Greenfield. It commenced in a poor family at the west part of the town of Deerfield, in an isolated situation. There were various opinions as to the origin of it. Many supposed that one of the inmates of that family brought the disease from Hartford, where he had recently been, and where it was said the complaint prevailed. He had the disease rather lightly and recovered. Others believed that it originated in the

family, which was dirty and poor. The house was old, and the floor loose. It was said that they were in the habit of raising a board in the floor, and throwing the offals and bones of their meals under it, and leaving them there to putrify. I shall not undertake to decide the question; but, certain it is, that several of the family had the complaint, and died in quick succession. Soon after, the disorder made its appearance in a neighboring family about a hundred rods off. Both these families, and all in which the fever prevailed, lived upon the side of a gently elevated mountain several hundred feet above the bed of Deerfield river, and in almost isolated situations.

To show the rapidity of the action of the complaint, I will mention the fact that my father was attending upon an obstetric case in that neighborhood, when one of the attendants, an aged lady, was taken unwell, and went home. She grew worse and sent for him, but he could not be spared. He went to her as soon as he could be released, which was in the course of an hour or two. When he arrived, the old lady was in the agonies of death, and she very soon expired. Very soon after, a little grand-daughter of the old lady was attacked in my father's arms, with the same complaint, and in a few minutes it died. While the attendants were laying out the old lady and child, the mother of the child, and daughter of the old lady, was attacked with the same complaint, and in less than twelve hours from the first attack of this fever in this family, the grandmother, the mother, and the grand-daughter lay corpses in the same room! The

complaint spread in a few families, when it was arrested, and never more made its appearance there. A few cases of it, however, occurred at the northwest part of the town, in Greenfield, and in various other parts of the county the next year, and was quite mortal. It soon subsided, and afterwards, for a few years, we had only a few scattered cases. It prevailed, however, in Worcester county, and several other parts of Massachusetts with a good deal of violence. Since then there has been but little of it in the State.

Early in the winter of 1814, a malignant epidemic commenced in this county, and prevailed in most of the towns in it, and in fact throughout the country. The common name for it was lung-fever, war-fever, &c. The technical name for it was pneumonia typhoides, but perhaps it was erroneously so called, as many of the patients had no affection of the lungs at all. The fever originated in the army on the western frontier in the year 1812 or '13, and, on that account, it was by many called the war-fever. This complaint was confined almost exclusively to old people; and it is a fact worth noticing, so far as my observation extended, not a person over 60 years of age, ever recovered from an attack of it. It was extremely mortal, and the symptoms rapidly ran on to typhus, and speedily terminated the life of the sufferer. Twenty-eight people died in the town of Deerfield, in the short space of two months. As the weather grew mild, the complaint in some measure subsided. A few scattering cases occurred in 1815.

In 1831 and '32, the scarlet fever was very prevalent in Greenfield, Deerfield, and various other parts of the county; and it will be seen by observations which I have made a short time since, that it has prevailed in scattered cases throughout the county both before and since. In some towns it has even prevailed as an epidemic. In the above-mentioned years, and in some others, it assumed a very malignant character. It was confined very generally to children. In 1831 there were fifty deaths in Deerfield, principally from this complaint.

In 1831, the typhus fever, according to Dr. Dorrance, prevailed extensively in Sunderland. This town, lying on the east bank of the Connecticut river, then contained about seven hundred inhabitants. The town had been unusually healthy up to this period, when, in the early part of winter, the scarlet fever and hooping cough prevailed extensively there. Soon after, typhus fever commenced, and up to November, sixty cases occurred in that neighborhood. Six weeks after, the same fever again commenced and spread rapidly, until "one hundred, principally in the village of fifty houses and perhaps three hundred inhabitants, were the subjects of it. Of three hundred cases, nine proved fatal." Fevers of a typhoid character have prevailed sporadically, and in some cases almost as epidemics, in various parts of the county at different times, and what is very astonishing, within a few years they have been more prevalent upon our elevated mountains than in the valleys.

The dysentery prevailed in several towns in this county in the year 1841. The season had been unusually dry a long while before, and the first cases which occurred came on about the first of August. It seemed to follow the courses of streams, and was most severe in the towns of Deerfield and Greenfield. There were nearly one hundred cases in each of these towns, and these were confined almost exclusively to the town streets, so called, in both these places. There were but few deaths, and it is supposed by the physicians who attended the complaint, that the astringent method of treating it had much efficacy in arresting the ravages of death from it. After the first evacuations, it was not uncommon to administer from 20 to 60 grains of the sugar of lead in a day, and from 5 to 10 grains of opium, with decidedly beneficial effects.

These are the principal epidemics which have prevailed in the county to any great extent, so far as I can ascertain. Undoubtedly some have been overlooked, for the want of more precise information. The most prevalent complaints in the county are pneumonic affections, which often terminate in consumption; fevers, principally of the typhoid character, especially upon our mountains, and particularly in the cold months. Croup is a common complaint among infants, especially in the valleys. Bowel complaints, such as diarrhœa, dysentery, cholera morbus, &c. prevail in summer. I cannot enter into a detail of our complaints, but must refer to the subjoined bills of mortality, for many towns in the county, for particulars. I have taken great pains to procure these

bills for some time past, but I have not been able to procure as complete returns as I could wish. I have written to several physicians, clergymen, and other gentlemen in the county, for returns of deaths in the several towns in which they reside, for the purpose of giving the average mortality of the county. In several instances I have received documents of great value from them on this subject, and I feel myself under peculiar obligations to them, for forwarding to me the statements of the deaths in their several towns, with their remarks. I am aware that the details from each town are attended with great, and, in many instances, with protracted labor. I hope they will accept my grateful thanks for their kind services. I have personally visited many of the towns, and examined the town or parish registers, and copied these bills at length for this purpose. I have spared no pains to give full returns for the county, but still they are imperfect, as I have not been able to procure a list of more than 15 towns. (See Note D.) The task of procuring the facts for the tables has not been the greatest. That of arranging them, and particularly that of drawing the average mortality of each town, to adapt it to the county, has been attended with more labor, than those who have never pursued such investigations, can readily imagine. After all, the result for the county may not, possibly, be true to a fraction.

I have adopted a process somewhat like the following in the tables of mortality of the towns from which I have received data. I have procured the amount of the deaths in all these towns, and then divided the sums

by the number of towns. For instance I take the town of Deerfield for forty-nine years, and divide the number of deaths into decennial periods. The deaths in these forty-nine years were 950, which average 19 and 38 hundredths a year. The population, from 1787 to 1797, the first decennial period, was about 1330. The deaths in this period were 116, or, on an average, 11 6-tenths a year. Population in 1800, 1537. Deaths between 1797 and 1807, 205, or 20 and 5-tenths a year. Population in 1810, 1570. Deaths between 1807 and 1817, 225, or 22 and 5-tenths a year. Population in 1820, about 1892. Deaths between 1817 and 1827, 169, or 16 and 9-tenths a year. Population in 1830, 2003. Deaths from 1827 to 1836 (nine years), 231, or 25 and 6-tenths a year. For the first ten years, there was one death in one hundred and fourteen inhabitants. For the second ten, one in seventy-five. For the third ten, one in seventy. For the fourth ten, one in one hundred and ten. For the fifth, one in seventy-eight. Average for the forty-nine years, one in 86 inhabitants. In this way I make the average mortality for all the towns which I have heard from in the county to be about one in 80 inhabitants. The lowest mortality in any town, as shown by the tables, was about one in ninety-two, and the highest about one in sixty. This was, however, less than a decennial period. Had it been extended to four or five such periods, there can be no doubt that the result would have been more favorable. That is considered to be a healthy country where the average mortality is one

in sixty. According to this, Franklin county much more than averages the healthy standard.

From all the towns heard from in this county, eleven have died over 100 years of age. One of these lived to the age of 117, and one to that of 106. In nine towns, in forty-four years, twenty-one have died between the ages of 95 and 100. Sixty-six between 90 and 100, and in the same number of towns for the same period, three hundred and thirty-six were between 80 and 90 years of age.

It has been questioned by some whether pulmonary consumption is actually on the increase in the county, or not. In some towns it will be perceived by reference to the tables, that it is increasing among us, while in some, perhaps, it is not. In the town of Deerfield, for instance, with an average population for 55 years of about 1500, there have been 144 deaths from it; while in Conway, an adjoining town, for about the same period and about the same number of inhabitants, there have been but seventy-six deaths from it. Some of my correspondents in the western part of the county say it is certainly on the increase with them. Dr. Gould, of Rowe, says, there were in that town ten deaths from it in one year. This, however, was a very uncommon and in fact a solitary instance. In the town of Greenfield, I understand, with a much larger population, there were a few years ago, two years without a single death from this direful complaint. This is as singular as the fact in relation to Rowe. As nearly as I can estimate, about one-sixth of the deaths in this county are from consumption.

Physicians.—There are about forty-four practising physicians in this county, who have been regularly educated; besides three or four, who rather decline engaging in the active pursuits of the profession. Allowing the population of the county to be thirty thousand, this would give, if equally distributed, one physician to seven hundred inhabitants. This is about the proportion for the State. Allowing there to be one thousand physicians in the State, and seven hundred and fifty thousand inhabitants, this would give one physician to seven hundred and fifty inhabitants.

Of the physicians in this county, at least, twenty-five, and perhaps more, have received the degree of Doctor of Medicine from some of our most respectable colleges. We have medical graduates here from Philadelphia, New York, Boston, the Berkshire Medical Institution, Hanover, and Woodstock. We have several old and respectable physicians, who regularly studied their profession, when it was not very common to attend medical lectures, who have never received a diploma from any medical college, but who are still as well, if not better, qualified than many others with their diplomas of the Doctorate; physicians who have successfully and honorably practised the healing art for more than thirty years, and whom I take unbounded pleasure in greeting as professional brethren, and to whom I often look for counsel and advice.

Thirty-three of our physicians have been admitted into the Massachusetts Medical Society, but the exact number who have accepted the appointment, I am

not able to state. It cannot, however, be denied that there has been a prejudice against the Society by many of our physicians, from the belief that the members in the more central parts of the State enjoy greater privileges than those more remotely situated. They object to the by-law preventing consultations with respectable members who do not belong to the Society. They think it as reputable to consult with a respectable physician, who has been regularly educated in his profession, and perhaps has his diploma from an accredited medical college, as with a Fellow of our Society, and they can hardly consent to the distinction. I have always endeavored to satisfy them of the futility of many of their objections, and I think the emendations of the constitution proposed by the committee who were appointed for the purpose of modifying the by-laws of the Society, at Worcester in 1839, and which were adopted by the Society, will, when the subject is well understood, give universal satisfaction; and I trust the day is not far distant, when every respectable practitioner in Franklin county, and even in the State, will become associated with us.

The formation of district Societies, and the system of delegation, appear to be giving general satisfaction to our professional brethren. This ought to be a subject of rejoicing to us, for we have in the county physicians who would do honor to any part of our State or country, and we always have had professional brethren of whom Massachusetts might justly be proud. I speak from observation, when I say we

have many as well educated physicians as are to be found in any part of the States, and those too who devote as much time and attention to the healing art as many others. Many of them have medical libraries of standard merit, of from fifty, and I presume I put it at the lowest estimate, to six or seven hundred volumes. In addition to the standard elementary works, which are to be found on the shelves of all our brethren, many of us have taken, and are taking the most approved medical periodicals in the world, whereby we are striving to keep pace with the great and important improvements of the day. We can show in our libraries the European Medical and Physical Journal, Johnson's Medico-Chirurgical Review, the London Medical Gazette, the Lancet, the American Medical Journal, the Boston Medical and Surgical Journal, the New York Medical Journal, the Western Journal of the Medical and Physical Sciences, Dunglisson's Medical Intelligencer, Bell's Medical Journal, Coxe's Medical Museum, B. S. Barton's Medical and Physical Journal, the Cyclopedia of Practical Medicine, Tweedie's Library of Practical Medicine, Bigelow's and Barton's Medical Botany, the Monthly Journal of Medicine, Silliman's Journal, Bourgerey's and Jacob's Anatomical Plates, now publishing in Paris, and many others which time will not permit me to enumerate.

Among our deceased medical brethren, the county of Franklin has sustained individuals, who would have done honor to any of our scientific emporiums. I presume I shall be pardoned for mentioning the

names of some whom we have ever delighted to honor. A mere enumeration of names, in some instances, will be all that I shall be able to give. I regret that I could not enter more minutely into their histories for want of more definite information. I hope I shall not be considered invidious, for selecting those only concerning whom I have been able to procure facts in relation to their history. For obvious reasons, I have omitted to mention the names of distinguished individuals among the living. They will soon enough be enrolled among the dead, when their surviving friends, I trust, will do ample justice to their memories.

Among the dead I have already spoken of Dr. Thomas Williams, the earliest regular physician who ever established himself in the limits of the county of Franklin, which then made a part of the county of Hampshire, and of Dr. William S. Williams, in the fourth volume of the Transactions of this Society. I now take pleasure in mentioning the names of Dr. Samuel Prentiss, Dr. John Stone, Dr. Pardon Haynes, Dr. William Hamilton, Dr. Joseph Allen, Dr. Eli Wing, Dr. Samuel Church, and the venerable and learned Dr. Wells. I intend to give a slight notice of these, and shall briefly enumerate the names of a few others, who were reputable members of the profession in this county, and who continued to practise physic as a business during the most or the whole of their lives. With much pleasure, also, I recur to the names of Dr. Mattoon, of Northfield, Dr. Pomeroy, of Warwick, Dr. Ebenezer Barnard, and Dr. Elihu Ashley,

of Deerfield, Dr. Ebenezer Childs, of Shelburne, Dr. Stephen Bates, of Charlemont, Dr. Porter, of Wendell, Dr. Moses Hayden, and Dr. Samuel Ware, of Conway, Dr. Ross, of Coleraine, Dr. Harwood, of Whately, and Dr. Brooks, of Orange. I regret that time will not allow me to enter more fully into details upon this subject, and that the paucity of my information will allow me to give but meagre accounts.

Dr. Samuel Prentiss, of Northfield.—I am indebted to the Hon. Samuel Prentiss, of Montpelier, Vermont, Senator in the United States Congress, and son to the subject of this notice, for the principal part of the facts which I now present to you. He regrets exceedingly that the death of his mother, at the age of eighty-four, which happened two days before his arrival at Montpelier from Washington, has prevented him from giving the precise information which he could have wished.

Dr. Prentiss was born in Stonington, New London county, Connecticut, in the year 1759. He was son of Col. Samuel Prentiss, who was first a Major and then a Colonel in the American revolutionary army. He received a good academical education, and studied the profession of medicine with Dr. Philip Turner, of Norwich, Connecticut, one of the very best American surgeons of the age in which he lived. He entered the army of the Revolution while quite young, and acted for a time as military waiter to his father, but soon after this he returned to civil life. After studying his profession, he once more engaged in the public

service, in the capacity of assistant-surgeon in the army, where he acquired a great deal of practical knowledge in the profession. After the close of the war, he married a daughter of Captain Holmes, of Stonington, Connecticut, and soon removed to Worcester, in Massachusetts, where he resided several years. Not far from the breaking out of Shays' rebellion, he removed to Northfield, then in the old county of Hampshire, and during the insurrection was zealous and active on the side of the government. His practice, as a surgeon, while at Northfield, was very extensive; and for many years he was the principal operator in this part of the country. His ride extended throughout the western counties of Massachusetts, and far into the States of Vermont and New Hampshire. In fact, he was almost the only operating surgeon in this section of the country for more than twenty years, which sufficiently attests the estimation in which his professional services were held by his medical brethren and the public. I regret that I am not able to give the number, or even an abstract, of his capital operations. If he ever kept such an abstract or enumeration, I have never been able to find it. His capital operations must have been numerous, for the profession was not then crowded with operators as it is at present,—when we have two or three, and perhaps more, professed surgeons in almost every county.

He was admitted a Fellow of the Massachusetts Medical Society in the year 1810, when he resided at Bernardston. He continued his fellowship till the

time of his death, which occurred at his residence in Northfield in 1818, at the age of fifty-nine. Out of a numerous family four sons survive him. Samuel has twice been elected into the Senate in Congress by the Legislature of Vermont. John H. resides at Cooperstown, New York, and has twice been elected into the House of Representatives in Congress from that State. William, the youngest of the family, resides at Milwaukie, in Wisconsin, and has been a member and President of the Legislative Council of the territory,—showing that Dr. Prentiss has not been unmindful of the education of his children.

Dr. John Stone was born at Rutland, Worcester county, in the year 1763. He received a good academic education, and commenced the study of medicine with the celebrated Dr. John Frink, of Rutland, a distinguished member of the Massachusetts Medical Society. After the close of his pupilage, he commenced practice at Greenfield in this county, where he soon obtained an extensive business. An attack of Hæmoptysis induced him to relinquish the practice at Greenfield, and to establish himself in the city of New York, about the year 1805, where he remained about two years, and became an active member of the New York Medical Society, and did considerable business. His health at this time was reinstated, and he was induced, once more, to return to Greenfield, where he remained till 1819, when he sold his place and privileges to Dr. Seth Washburn, who died in the year 1825. He then removed to

Providence, Rhode Island, where he remained a year or two, and then took up his abode at Springfield, where he engaged in extensive and lucrative business, which continued till near the time of his death in 1838, at the age of seventy years.

He joined the Massachusetts Medical Society in 1803, and continued an active member of it from that time till his death, a period of thirty years. For many years he was a Counsellor in the Society, in which office he discharged his duties with fidelity and zeal. At the recommendation of his professional brethren, who knew his worth, the honorary degree of Doctor of Medicine was conferred upon him in the year 1824, by the authority of Williams College, then in connection with the Berkshire Medical Institution. He educated a number of pupils in the profession, among the rest Dr. Alpheus F. Stone, of Greenfield, a distinguished Fellow and Counsellor in this Society; and an only son, who, afterwards entered the army as an officer, and died at the South. His library was large and respectable, and he kept pace in his purchase of books, with the great and important improvements of the age. His business was extensive as a consulting physician, and he enjoyed the confidence of his professional brethren by whom he was surrounded.

In his manners, Dr. Stone was a perfect pattern of a gentleman; and no one could approach him, however humble his sphere and condition, without receiving a share of his urbanity and particular attention. A neighboring physician once observed of him, that "that polite how do you do?" of his, took away his

business. This expresses all I could wish to say of him in this respect. In his person, he was tall and erect, and he was proverbially one of the neatest and most fashionable men in his dress in the county. He always rode and drove good horses, and he was the most graceful horseman in this section of the country. He was always ready at the call of any one, and there are but few physicians living, who could or did do a greater amount of business in a given time. His faculties continued bright till the close of life, and he was able to transact business till within a short time previous to his death. He died universally lamented.

Dr. Pardon Haynes.—Dr. Humphrey Gould has kindly favored me with data from which the following sketch is drawn:

The birth-place of Dr. Haynes, late of Rowe, was New London, Connecticut, where he was born on the 2d of February, 1762. He moved from that place with his father to Hoosac, at the age of fifteen years. He served for a short period in the army of the Revolution. He studied the profession of medicine with an older brother. He commenced practice in the town of Hebron, New York; but the manners and customs of the people there were so uncongenial to him, that he was induced to change his residence for a home in New England. An intimate friend of his directed him to Rowe, assuring him that that place stood in great need of him. He visited the place and concluded to remain. His business soon became quite extensive.

Dr. Haynes practised his profession in Rowe, and the adjacent towns, for the space of forty-five years, with well-deserved reputation and with great success. He accumulated, perhaps, as great a property by his practice, as any man in the county. His constitution was unusually firm. He had an indomitable spirit of perseverance, and he faltered at no labor, however severe. In the early part of his practice he suffered great hardships, and he was often exposed to imminent danger. Dr. Gould says, "He was frequently obliged to go by marked trees in his visits to the sick, often at the peril of his life. On one occasion, riding in the latter part of the night over a new cut path in the winter season, his horse fell with him, the place being sideling, his horse was brought up against a tree, and fell upon him, and he was utterly unable to extricate himself from his dangerous situation, remaining thus exposed for a while; fortunately, a man came along and relieved him. I have often heard the people of Reedsborough tell of being in the woods with him, and thus exposed through a long winter's night, till the light of day showed them on their way."

Little do the physicians of the city know of the hardships and privations of our physicians on our western mountains, during our long, dreary, and inclement winters. Frequently, their only mode of conveyance is on foot, on Indian rackets and snow-shoes,—and all this often for the paltry sum of one shilling a mile, even at which some of their employers find fault. Small as is this sum, many of the physicians there make an independent fortune by it.

Strange as this assertion may seem, it is nevertheless true. It is done by the most rigid habits of economy, and self-denial of many of the luxuries of life.

Dr. Haynes never permitted any obstacle to prevent his visiting his patients at the appointed hour, if it was in his power to do it. He was often obliged to cross Deerfield river, which rises in Hoosac mountain, at the hazard of his life. Dr. Gould observes, "He would often swim his horse when the ice would beat the skin from his limbs. On such occasions, his motto was, 'live or die, I will go through.' He was no surgeon,—but a good and able physician,—but, fortunately, distinguished as a practitioner of midwifery, in which department few excelled him. He was extremely regular in his habits. He rose in the morning at 3 o'clock, generally, in the active period of his life; devoted the stillness of the morning to reading; and, usually, long before light, was upon his horse performing his daily round of business. He was ready at every one's call, rich or poor. He was a faithful friend, a kind parent, indulgent to a fault. His memory is still held in grateful remembrance by many who have received the benefit of his healing art. It was his inveterate practice, which grew upon him in consequence of the vast amount of business he was obliged to do while upon his horse, to turn his head neither to the right hand nor left, let him meet whom he might, unless particularly accosted. He commanded the company in Rowe, when an office in the militia was honorable, and conferred distinction upon him who filled it. He was commissioned by John

Hancock and Samuel Adams. On one occasion, his company was particularly distinguished by the venerable General Mattoon, as the first and best disciplined upon the field, at a regimental muster. Dr. Haynes died December 29, 1833, aged seventy-one years. His sickness was short; his mind unclouded. He died in the full faith of a Christian hope of a blessed immortality. He was a sincere believer in the Unitarian views of gospel truth.

Dr. William Hamilton, of Conway.—I take great pleasure in inviting the attention of this Society to the merits of this enterprising physician, who was cut off in the midst of his usefulness at an early age. Few men in our country exhibited a greater promise of future usefulness. He was rising into eminence, not in that rapid manner which is evinced by many young physicians, who are lauded to the skies in the first two or three years of their professional career, and afterwards as rapidly sink in public estimation. Such fame is almost always ephemeral. I consider it unfortunate for any young physician to enter at once, at the commencement of his professional life, into a large run of business. It does not give him sufficient time to investigate the important cases which may fall under his notice, and it often leads him into a loose and careless method of practice. He has not time to avail himself of the experience of the wisest men in the profession, through the medium of their writings; and he often substitutes his own experience for theirs. I have hardly ever known such a physician ultimately to suc-

ceed, as a useful and talented practitioner. When I hear a young man boasting of having charged one hundred and fifty, or two hundred dollars a month, I immediately distrust him, and think he is doing it for effect. A modest, unassuming young man will not praise himself in this way, but will leave it for others to do it, if he deserves it. Dr. Hamilton rose upon his own merits, and was slowly, but surely, obtaining the confidence of the public where he practised, and the applause of his professional brethren.

He was son of Captain Robert Hamilton, a meritorious officer in the war of the Revolution. His mother is still living, and in vigorous health, at the age of 95 or 96 years. He was born in Conway, in the year 1772. In early life, I understand, he had a lameness of one of his legs, and that, in consequence, he devoted his attention to books. After preparing himself for the study of medicine, he entered the office of the elder Dr. Cutler, of Amherst, who was a Fellow of this Society. He remained there awhile, and then completed his medical pupilage in the office of Dr. William Kittredge, who then resided in Conway. He then commenced the practice of his profession in his native town, where he continued in the discharge of his professional duties, to the universal satisfaction of his employers, till the time of his death, which happened in the year 1810, at the age of thirty-eight years.

He was always fond of study, and he was a reading and reflecting man. He educated several medical students, and most of them proved to be highly respectable practitioners. In civil life he enjoyed the

confidence of his townsmen in an eminent degree, and in the brawls and discords which sometimes occur among neighbors, he was often called upon to heal the disturbances of the mind, as well as of the body. On one memorable occasion, in the height of political excitement, during the embargo, about the year 1808, when the public mind was almost ripe for civil war, by his influence and exertion he, probably, saved the effusion of much blood, in a contest which must inevitably have ensued between some of his fellow-citizens, and those of a neighboring town. This is not the place to enter into a detail of that event. Suffice it to say, that were it not for his exertions a riot must have followed, many lives have been lost, and the miseries which would have ensued must have been incalculable. His memory will ever be dear to his fellow-townsmen, and to those who were acquainted with him.

Dr. Joseph Allen.—Dr. Allen was born on Long Island, in the year 1764. At the age of two years he came to Hardwick in this State, where he lived till he was old enough to study medicine. Of his early education I know nothing. He studied the profession of medicine with Dr. William Kittredge, then residing in Conway. Dr. Kittredge was considered by the public to be a great bonesetter and surgeon. Dr. Allen commenced practice in Coleraine in this county, where he continued one year, when he moved to Buckland, where he had a great run of business till the time of his death, which occurred in the year 1823, at

the age of fifty-nine. He joined the Massachusetts Medical Society in 1812, and resigned in 1818. He made considerable property by the practice of his profession, and he was well thought of by his professional brethren. I believe he performed some capital operations in surgery, and he was thought by many to be a superior bonesetter.

Dr. Eli S. Wing, of Leyden.—I am indebted to the politeness of Dr. W. A. Wilkins, of Leyden, for the facts upon which the notice of this individual is based. Dr. Wing was born in the town of Harwich, near Cape Cod, in the year 1758. It is reported of him that in early life he was much attached to books, and that he had a great aversion to manual labor. In consequence of this, his father, who was in comfortable circumstances as to property, never gave him a dollar of his estate. By his own industry he obtained a good education, and for many years he was employed as a school-teacher. I cannot ascertain how well qualified he was for the study of medicine; but at about the age of thirty years he commenced the study of the profession with the late Dr. Samuel Ware, of Conway, with whom he continued during his pupilage. He carried with him his early attachment to books through his whole life,—and devoted all his leisure hours to the reading of medical and miscellaneous works. His medical library contained most of the standard works of his time and was very respectable. During some of the last years of his life he devoted much of his time and attention to the

study of the French language, in which he made considerable proficiency. His medical standing was quite up to, if not above, mediocrity for the time. He was admitted a Fellow of the Massachusetts Medical Society in the year 1816, and continued in it till the year 1823, when he died at the age of sixty-five years.

Dr. Samuel Church, of Sunderland.—Dr. Church was born at Amherst, in the county of Hampshire, about the year 1756. He graduated at Harvard University in 1778, and studied the profession of medicine with Dr. Colman, of Amherst, a man of a good deal of celebrity in those days. Soon after this he commenced the practice of his profession in Sunderland, where he resided much esteemed to the time of his death, which occurred in the year 1826, about the age of seventy. He was admitted a Fellow of the Massachusetts Medical Society in 1816, and he resigned in the year 1823.

Dr. Church was a judicious, but rather a timid practitioner of medicine. His judgment in relation to diseases was discriminating and very correct; but he never administered his remedies with so bold and unsparing a hand as many of his professional brethren. He, nevertheless, enjoyed their confidence to a great extent, and he was on terms of great intimacy with such men as the venerable Dr. Wells, of Montague, Dr. Hunt, of Northampton, Dr. William S. Williams, of Deerfield, and many others. In his manners he was affable and polite, but modest and retiring. In

size he was about the middling height and proportions. He was very plain in his dress, as well as in his manners. He never sought business, but was always ready to attend his calls whenever they were made. He was considered to be a very good and correct writer, but he never published many of the productions of his pen. I understand he kept some manuscript volumes of medical notes, but I have also been informed that they were probably lost with an only son, who perished on board the ill-fated Lexington, in Long Island Sound, in January, 1840. He was a poet of no mean abilities.

Dr. Church had always great vivacity and humor, which he retained to the day of his death. I attended him during his last sickness, and shall never forget his cheerfulness and good spirits; although laboring under a severe complaint, which he bore with Christian fortitude.

Dr. Church held the office of justice of the peace for many years, and was considered a most upright and able magistrate. In a few of the last years of his life, he did much more business in his legal than in his medical capacity; though most of his old patrons continued to employ him, as a physician, as long as he lived.

Dr. Henry Wells, of Montague.—I cannot do better, at the conclusion of this discourse, than to give a brief notice of this most respectable physician. I regret that I have it not in my power to give a more particular account of this truly great and eminent phy-

sician. I am indebted to Dr. Bachelder, of Royalston, a former pupil of Dr. Wells, and Vice President of this Society, and to Dr. Richard Wells, late of Canandaigua, a son of Dr. Wells, for many of the facts mentioned in this memoir.

Dr. Wells was born in the city of New York, in the year 1742. He entered Princeton College at the age of ten years, and graduated at the age of fourteen. He studied medicine four years with the celebrated Dr. Hull, of Connecticut, the inventor of Hull's Physic. He afterwards studied medicine three years in the city of New York. I have been informed, but I will not vouch for the correctness of it, that he studied divinity, for a short period, after this. He afterwards kept an apothecary's store in the city of New York. His father, I understand, was a tory during the revolutionary war, and his property was confiscated. Dr. Wells removed to Brattleborough in Vermont,—about the time, or just before the war,—where he resided several years. As this was a rough country for his practice, he removed to Montague in this county, where he supposed his business would be less laborious. He was often called to patients at Albany, Hanover, N. H., and various parts of Connecticut, Vermont, and Massachusetts; and he had the confidence of all his professional brethren throughout the country. He was much extolled by Dr. Nathan Smith, Dr. Twitchell, and many other of our respectable physicians. He united himself with the Massachusetts Medical Society in the year 1785, and continued his fellowship till his death

in 1814, a period of twenty-nine years. During a considerable portion of this time he held the office of Counsellor in the Society. He received the honorary degree of Doctor of Medicine from Dartmouth College, in the year 1806.

His habits and manners were conformable to what were called the old school of gentlemen, and he has been very appropriately called a "nobleman of nature." His dress was in Quaker-like simplicity, and much in its form and color like theirs. He either wore the velvet or buckskin small-clothes or breeches, the long jacket with flapped pockets over the thighs, and the broad brimmed, low-crowned hat, as long as he lived. He was broad-chested, and a little inclined to corpulency. I never saw him when I was not reminded of the portrait of the venerable Dr. Franklin, to whose general appearance there must have been a great similarity. A miniature portrait which I have seen of the Rev. Dr. Smith, of Princeton, New Jersey, so nearly resembles him, that his family have pronounced the likeness correct. Notwithstanding his peculiarity of dress, and general appearance, his address rather excited familiarity than awe. Many of his patients almost worshipped him, and his presence has often smoothed their passage to the tomb. I am sorry that I have it not in my power to give more particular instances of the beneficial influences which his presence inspired in many incurable, as well as curable, complaints. A stranger, laboring under a mortal complaint, was induced to send for him, hoping that he might do something towards alleviating his

distress, though he had no expectation that he could cure him. The doctor spent several hours with the patient, and when he left him he was able to sit up, and write a letter to his family physician, stating, that the presence of Dr. Wells, his urbanity, cheerfulness, attention, and good sense, as evinced in his conversation, had so completely enraptured him, and enchained his attention, that he had almost forgotten his complaint. He was so much pleased with him, he observed, that he would rather have given a fortune than not to have seen him.

One of his patients in Montague, while he lived in Brattleboro', remarked, that his presence was like that of an angel. After his removal to Montague, she observed, that she saw him so frequently that his visits had lost some of their charms. This verifies the assertion, that "far fetched and dear bought," is the most esteemed; and that "a prophet is not without honor, save in his own country," an observation which is many times true in the life of a country physician. Even the most illiterate pretender will often obtain the ascendency over modest, humble worth, however learned and worthy the possessor may be. Even Dr. Wells was destined to know and to feel the truth of the remark in his declining years. Gratitude for services rendered by an eminent physician is often as transient as the dew of the morning. The elder members of the profession which I now address, can, doubtless, remember many instances where they have been highly extolled by their patients in one sickness, whilst in a succeeding one they have been superseded by charlatans, or unfledged pretenders, thus reversing

the sentiment of "vox populi, vox Dei," into that of "vox populi, vox Diaboli." It is not so, however, with the opinions of our professional brethren. When a physician has once obtained the well-earned confidence of his brother practitioners, he always retains it; and this reputation is of vastly greater importance than the bauble reputation gained by wealth. The patronage and applause bestowed upon Dr. Wells by his professional brethren remained through a long life; and after death was transmitted to his descendants, and follows as a rich legacy which can never be lost.

Dr. Wells was always facetious and cheerful with his patients, when their circumstances would allow of it, thus inspiring them with great confidence of their recovery. Many cases might be mentioned illustrative of the truth of this remark, but I have only time to mention the following: He was sent for by a patient who was considered to be dangerously sick. He spent the evening at his bedside, and, on his retiring to rest, before he blew out his candle, a messenger entered his room with a boot-jack in his hand, which he informed the doctor the patient had sent in to him for the purpose of enabling him to pull off his buckskin breeches. The doctor sent back word to him that he need be under no fear of dying for the present. The effect was most salutary upon the sick man.

Owing to an accident, which I shall presently mention, we have no details of his practice on record. He was supposed to be successful in some cases in the cure of hydrophobia. He once mentioned to me that he knew a case of hydrophobia occur six years

after the bite of a mad dog. I think the remedy on which he principally depended, was a preparation of mercury. Happy would it be for physicians, as well as patients, were we able to place any dependence upon this article for the cure of this terrific complaint. An account of the accident, which deprived the world of much of the recorded usefulness and information of Dr. Wells, will be found in the following extract from a letter from his son, Richard Wells, M. D., late of Canandaigua, N. Y. I wrote to him for information concerning his father, in the spring of 1840. He replied to me in a letter of March 30, of the same year, that the proposition which I made to him, of writing some account of the life of his father, was peculiarly gratifying to him, and that nothing could have afforded him greater satisfaction than to know that the circumstances connected with the sphere of action in the latter part of his father's life were carefully and accurately narrated. "Yet," he says, "should I attempt to enter upon, or prosecute any plan to accomplish so desirable an object, I should feel myself greatly embarrassed for the want of sufficient data, for the ground-work you so ardently solicit. I have for many years had in my possession all, or nearly all, my father's manuscripts, which were always kept at my office. Amongst them were many cases which he had noticed in the course of his practice, where any peculiarity of symptoms presented. Also, a common-place book, in which he had noticed new theories and contrasted them. If I was still in possession of them, it would add much to the interest

of his memoirs. Of all these I have unfortunately been deprived. A crazy man entered my office, one morning, the key being left in the door, and soon began his work of destruction, by stripping himself, and burning every rag of his own clothing; next, all the wearing apparel he could find, coats, boots and shoes, of a hired man of mine, then the shop furniture, and all the books that were out of the cases, and every day-book and ledger, from 1824 to 1832, all the loose papers, letters, orders, memorandums, and, with the rest, the manuscripts above-mentioned. It requires more energy of body and mind, than I now possess, to communicate even what I may, on suitable reflection, get up on summoning my resolution." Thus, at one fell swoop, were the principal part of the written mental labors of this great man buried in everlasting oblivion.

Dr. Wells was affected, for many years, with what was supposed to be Angina Pectoris. He often thought he experienced much relief in this distressing and painful affection from the tartar emetic lotion, carried to the extent of pustulation. I do not know the complaint of which he died, but I believe it was not an affection of the heart.*

* The following notice of him was written by the Rev. Dr. Willard, of Deerfield, and published in the Franklin Herald, for Sept. 8, 1814. It is so correct and just, that I have no doubt you will excuse me for copying it:

Died in Montague, Aug. 24, 1814, Henry Wells, M. D., M. M. S., aged 72. The uncommon interest the public must feel in this great and good man, will, it is presumed, justify and require a brief sketch of his character and life.

Dr. Wells received a collegiate education at Princeton, N. J., studied his profession at Lebanon, Conn., practised a short time in New York,

I regret, extremely, that my limits do not allow me, at this time, to speak of the venerable Dr. Erastus

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and then removed to Brattleborough, Vt., where he continued 18 years. His practice and reputation soon became extensive; and it was with the design of placing himself nearer the centre of his business, he removed in the year 1782 to Montague, where he spent the remainder of his life.

In his profession, Dr. Wells attained the most distinguished rank. He combined those talents and habits, which, in the course of a long life, must, with the blessing of God, be attended with great proficiency. His natural powers of apprehension were good; his application methodical and patient. His professional reading was extensive and judicious. His eminent skill, however, in the management of diseases was in a great measure derived from his own observation and experience. The symptoms of diseases were marked by him with a critical eye, and minutely recorded, together with the medicine administered, and the consequent changes in the symptoms. In this way he formed his judgment of the proper method of treating the several diseases which fell within the circuit of his practice, under the great diversities they derive from many different causes. His practical inductions were the results of enlarged views and cautious deliberations; and, of course, they were remarkably free from the errors of harsh conclusions even in the greatest minds. The fruit of this ingenious method was a degree of professional eminence, that commanded the confidence of his brethren and of the public, to a wide extent. In all difficult cases, his counsel was sought, and, in general, envy and vanity were silent at his name.

With all his greatness, Dr. Wells was modest and unassuming. With a due independence of thought, he readily listened to the judgments and reasonings of others. It is well known that the theories of diseases, and, of course, the modes of treatment in many cases underwent a great change after he attained to the meridian of life. But he discovered nothing of that bigoted attachment to former modes, which from principles or feelings very common to men, might have been expected. His mind was ever open to conviction, and he was ever ready to adopt any new improvements in the art of healing, that were sufficiently attested. He preserved a happy medium between visionary innovation, and a blind adherence to old theories and principles.

In his professional business, and indeed in every thing else in which he was engaged, Dr. Wells was remarkable for his punctuality. He was extremely moderate in his charges. He was tender, and in all respects faithful to those who applied for medical aid. In his death,

Sergeant, of Stockbridge, who received his medical education in the county of Franklin; and who was a distinguished Fellow of this Society from the year 1785 to 1814, when he died at the age of seventy-two.

While on the subject of the biography of the distinguished physicians of Franklin, I cannot but express the hope that the venerable Dr. Thatcher, of Plymouth, one of the most learned and aged physicians in this Institution, may be induced to publish another volume of the biography of the distinguished physicians of America, who are now enrolled among the dead. Or, if the increasing infirmities of years, spent in the cultivation of the noble profession of medicine, are such as to forbid him from engaging in this arduous but pleasing performance, it is highly desirable that some other physician should undertake it. We have many who are amply qualified to do

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his brethren are bereaved of an able counsellor, and the public of one pre-eminently capable, under God, of relieving their heaviest temporal calamities.

As a man, Dr. Wells was highly respected and beloved by those who knew his worth. He professed a firm belief in the gospel of Christ, and was much attached to the moral and religious institutions of our land. He was a man of peculiar sensibility of heart. He was characteristically meek and humble. He was a pattern of temperance, rarely, or never making any use of those spirituous liquors which are among the principal causes of disease and death; and finally, in all his trials, some of which were great, he was patient, resigned, and cheerful. His conduct in the domestic relations of domestic life was affectionate and faithful. His children, some of whom are in circumstances truly interesting to a benevolent public,* mourn the loss of the kindest of parents. But the recollection of his virtues must alleviate their sorrows, through the blessed hopes of a resurrection to come, and a glorious state of rest and joy in reserve for all, who believe and embrace the gospel of peace.

* Three of them are deaf and dumb.

it in this Society, and the length of time which has elapsed, since the publication of that inestimable and highly popular work, is so great, as loudly to call for a new edition of it, with the biographies of such distinguished physicians as have died among us within the last eighteen years; or an additional volume containing the much wished for reminiscences. I hope this hint may receive the attention which it merits, and that the memories of some of our most eminent medical men may be placed upon more durable records than ephemeral or weekly newspapers.

It is a subject of much congratulation that the Society has been called to mourn the loss of but a few of its members during the past year; and while we drop the tear of sympathy and regret at the decease of our late associates,* we ought to rejoice at the full measure of health which has been bestowed upon the surviving members of the Society. A parallel instance can hardly be found in the annals of any Institution, embracing so large a number of Fellows as ours. With fervent and devout aspirations of praise and thanksgiving to the eternal Jehovah, ought this conspicuous goodness to inspire our hearts.

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* The following members of the Society have died during the year:

		Age.
July 14, 1841,	Samuel Bugbee, M. D., Wrentham, . . .	60
Jan. 23, 1842,	William E. Foster, M. D., Boston, . . .	33
March, "	Chester Cowles, M. D., Amherst, ...	71
March, "	Ezekiel W. Leach, M. D., Boston, ...	30
April 13, "	George B. Doane, M. D., Boston, ...	49
May 6, "	Artemas Bullard, M. D., Sutton, ...	73

Dr. Richard Wells, of Canandaigua, N.Y., formerly a Fellow of the Society in Conway, also, died in 1841, aged 70 years.

NOTES.

A.

TABLE, *showing the mean degrees of heat and cold in Deerfield for thirteen months in* 1826–7 :

1826.		1827.	
July—Greatest heat . . .	85	*Jan.*—Greatest heat	44
Least heat	60	7 times below 0, once 25 below	
Aug.—Greatest heat . . .	85	*Feb.*—Greatest heat	47
Least heat	60	5 times below 0, once 11 below	
Sept.—Greatest heat . . .	86	*March*—Greatest heat . .	67
Least heat	60	Least heat	2
Oct.—Greatest heat	77	*April*—Greatest heat . . .	76
Least heat	27	Least heat	35
Nov.—Greatest heat . . .	55	*May*—Greatest heat . . .	90
Least heat	20	Least heat	38
Dec.—Greatest heat . . .	55	*July*—Greatest heat . . .	92
Least heat 8 below 0		Least heat	60

This is a pretty fair average of our weather from year to year.

B.

Depth of Snow which has fallen in Deerfield for 18 *years, according to results forwarded to me by* Rufus Saxton, *Esq., of this town.*

Winters.	Inches.	Winters.	Inches.
1815 and 1816	40	1826 and 1827	69
1816 — 1817	61	1827 — 1828, before Jan.	24
1817 — 1818	49	1828 — 1829	60
1818 — 1819	52	1831 — 1832	82
1819 — 1820	51	1832 — 1833	62
1820 — 1821	85	1833 — 1834	61
1822 — 1823	58	1834 — 1835	55
1823 — 1824	38	1835 — 1836, I believe over . . .	90
1824 — 1825	31	In 1812, according to my grandfather . .	76½
1825 — 1826	32		

C.

Catalogue *of some of the Medicinal Plants found in the County of Franklin. A complete enumeration of them would occupy a great many pages. I therefore subjoin the most important of them.*

Acalypha Virginica, *Mercury weed,*
Acer saccharinum, *Sugar Maple,*
Acer rubrum, *Soft Maple,*
Acer strictum, *Moose Maple,*
Acer spicatum,
Achillea Millefolium, *Yarrow,*
Actæa, rubra and alba,
Aconitum napellus, *Wolfsbane,*
Acorus calamus, *Sweet flag,*
Adiantum pedatum, *Maidenhair,*
Æsculus hippocastanum, *Horse-chestnut,*
Agrimonia Eupatoria, *Agrimony,*
Agaricus, *Agaric Punk,*
Agrostemma gethago, *Cockle,*
Aletris farinosa, *Mealy starwort,*
Althæa, *various species of Mallows,*
Alisma plantago, *Water plantain,*
Allium, *various species of Garlic,*
Alnus serrulata, *Black alder,*
Amaranthus, various species,

Ambrosia, several species,
Amygdalus Persica, *Peach*,
Anemone nemorosa, and other species,
Anethum graveolens, *Dill*,
Angelica triquinata, *Wild Angelica*,
Anthemis Cotula, *May weed*,
Antirrhinum linaria, *Snap dragon*,
Apios tuberosa, *Ground-nut*,
Apium (two species), graveolens and petroselinum,
Apocynum (two species), *Indian hemp*, *&c.*
Aquilegia Canadensis, *Columbine*,
Aralia, nudicaulis, spinosa and racemosa,
Arbutus Uva Ursi, *Bearberry*,
Arethusa,
Artemesia (several species), *Wormwood*,
Arum triphyllum, *Wild turnip*,
Asarum Canadense, *Snakeroot, wild ginger*,
Asclepias tuberosa, & other species,
Asparagus,
Aspidium filix mas, *Male fern*,
Asplenium, many species,
Aster Nov. Anglicus, and many other species,
Azalea, *Swamp honeysuckle*,
Berberis Canadensis (four species), *Berberry*,
Betula (four species), *Birch*,
Bidens Cenna, *Water Beggar ticks*,
Borrago Officinalis, *Borrage*,
Brassenia hydropeltes, *Water shield*,
Brassica, several species,
Botrophis serpentaria, *Culver's Physic*,
Bromus secalinus, *Chess*,
Bunias sempervivens, *Box*,
Cactus,
Calla palustris, *Water arum*,
Caltha palustris, *Cowslip*,
Capsicum annuum, *Red pepper*,
Carduus benedictus, *Blessed thistle*,
Carthamus tinctorius, *False saffron*,
Cassia Marylandica, *American Senna*,
Castanea Americana, *Chestnut*,
Caulophyllum thalictroides, *Blueberry bush*,
Ceanothus Officinalis, *N. Jersey tea*,
Celastrus scandens, *False bittersweet*,
Celtis crassifolia, *Hack-berry*,
Cephalanthus Occidentalis, *Button-bush*,
Chelidonium majus, *Celandrine*,
Chenopodium botrys, *Wormseed*,
Chelone glabra, *Snake-head*,
Chimaphila umbellata (and other species), *Spotted winter green*,
Chrysanthemum leucanthemum, *Ox-eyed Daisy*,
Cichorium Endivum, *Endiva*,
Cistus Canadensis, *Rock-rose*,
Cicuta maculata, *Wild poison hemlock*,
Circœa luteliana, *Enchanters' night-shade*,
Clematis Virginiana,
Cnicus Canadensis, *Canada thistle*,
Collinsonia Canadensis, *Horse-balm*,
Cochleare (several species), *Horse radish*,
Comptonia asplinifolia, *Sweet-fern*,
Conium maculatum, *Poison hemlock*,
Convallaria (several species), *Solomon's seal*,
Convolvulus (many species), *Wild potato*,

Coptis trifolia, *Gold-thread*,
Cornus florida (and other species), *Dogwood*,
Corylus,
Crocus,
Cunila,
Cucumis,
Cucubita,
Cynoglossum, *Hound's tongue*,
Cypripedium (various species), *Wild valerian, nerve powder*,
Datura stramonium,
Daucus carota,
Delphinium consolida, *Larkspur*,
Digitalis purpurea, *Fox-glove*,
Dirca palustris, *Moosewood*,
Epilobium spicatum, *Willow herb*,
Equisetum hyemale, *Horse-tail*,
Erigeron, various species,
Erythronium Americanum, *Dog-tooth*,
Eupatorium perfoliatum, purpureum, &c., *Thorough-wort, &c.*
Euphorbia maculata, *Spunge*,
Fagus ferruginea, *Beech*,
Fragaria visca, *Strawberry*,
Fraxinus acuminata, *Ash*,
Fumaria Officinalis, *Fumitary*,
Galium (several species), *Cleaves*,
Gaultheria procumbens, *Checkerberry*,
Gentiana (several species), *Gentian*,
Geranium maculatum, &c., *Cranesbill*,
Geum urbanum, *Avens*,
Glechoma hederacea, *Ground Ivy*,
Graphalium (many species), *Life everlasting*,
Gratiola Officinalis, *Hedge hyssop*,
Hamamelis Virginica, *Witch-hazel*,
Hederoma pulegiodes, *Penny-royal*,
Helianthus, many species,
Hepatica triloba, *Liver-wort*,
Heracleum lanatum, *Master-wort*,
Hibiscus,
Hieracium, several species,
Hydrastes Canadense, *Golden seal, &c.*
Hydrophyllum Virginicum, *Burr flower*,
Hyoscyamus niger, *Black henbane*,
Hypericum (many species), *St. John's wort*,
Hypoxis erecta,
Hysnopus,
Humulus lupulus, *Hop*,
Ictiodes fœtidus, *Skunk cabbage*,
Iris Virginica, *Flower de luce*,
Juglans (many species), *Walnuts, butternuts, &c.*
Juniperus Virginica, *Red cedar*, and other species,
Kalmia (two species), *Laurels*,
Lactuca,
Lamium,
Larix pendula, *Hackmetack*,
Laurus Benzoin, *Fever bush*,
Laurus Sassafras, *Sassafras*,
Lavendula spica, *Lavender*,
Lemna minor, *Duck-meat*,
Ledum latifolium, *Marsh-tea*,
Leonorus cardiaca, *Mother-wort*,
Leontodon taraxicum, *Dandelion*,
Lepidium sativum,
Liatris spicata, *Gay feather*,
Ligustrum Levisticum, *Lovage*,
Linum usitatissamum, *Flax*,
Liriodendron tulipefera, *White-wood*,
Lobelia inflata, *Devil's pepper*, and other species,
Lonicera sempervivens, *Honey-suckle*,

Lycopodium complanatum, *Ground pine*,
Lycopus Virginicus, *Bugle, water agrimony*,
Lysimachia stricta, *Loosestrife*,
Malva (many species), *Mallows*,
Marrubium Vulgare, *Horehound*,
Medeola Virginica, *Indian cucumber*,
Mellilotus Officinalis, *Melilot*,
Melissa (several species), *Balm*,
Mentha (many species), *Mints*,
Menyanthes trifolia, *Buckbean*,
Melampyrum Americanum, *Cow-wheat*,
Mirabilis Jalapi, *Four o'clock*,
Mitchella repens, *Creeping checkerberry*,
Monarda, several species,
Monotropa uniflora, *Beech-drop*,
Morus, several species,
Myrrhis dulcis, *Sweet Cicily*,
Nepata cataria, *Catmint*,
Nicotiana tabacum, *Tobacco*,
Nyssa biflora, *Peperidge*,
Nymphæa odorata, *White Pond lily*,
Nymphæa Advena, *Yellow water lily*,
Œnothera biennis, *Scabious*,
Origanum Marjoranum, *Marjoram*,
Orchis fimbriata, and other species,
Osmunda regalis, *Buckthorn brake*,
Orobanche Virginiana, *Cancer-root*,
Oxalis acetosella, *Wood sorrel*,
Oxycrocus vulgaris, *Cranberry*,
Pœonia Officinalis, *Piony*,
Panax quinquefolium, *Ginseng*,
Papaver, several species,
Pedicularis Canadensis, *Louse-wort*,
Phytolacca decandra, *Poke, Garget*,
Pinus Balsamea, Canadensis, and other species,
Plantago, many species,
Podalyria tinctoria, *Indigo weed*,
Polygonum, a number of species,
Polygala (many species), paucifolia, *Evergreen polygala*,
Polypodium,
Populus, many species,
Portuluca oleracea, *Purslain*,
Potentilla, several species,
Prenanthes alba, *White wild lettuce*,
Physalis alkekengi, *Winter cherry*,
Prinos verticillatus, *Red-berried alder*,
Prunella Pennsylvanica, *Self-heal*,
Prunus, many species,
Quercus, a great variety of species,
Ranunculus, many species,
Raphanus,
Rerida odorata, *Mignionette*,
Ricinus communis, *Castor oil plant*,
Rhamnus catharticus, *Buckthorn*,
Rheum tataricum, *Rhubarb*,
Rhus vernix, and many other species,
Robinia pseud-acacia, *Locust*,
Rosa, various species,
Rubus, a great variety of species,
Rumex (two species), *Sorrel*,
Ruta graveolens, *Rue*,
Saggitaria sagittafolia, *Arrow head*,
Salix, various species,
Salvia Officinalis, *Sage*,
Sambucus nigra and rubra, *Elder*,
Sanguinaria Canadensis, *Blood-root*,
Sanicula Canadensis, *Sanicle*,
Saponaria Officinalis, *Soap-wort*,
Sarracenia purpurea, *Side-saddle flower*,
Saturyia hortensis, *Summer Savory*,
Saxifraga Virginica, *Rock saxifrage*,

Scrophularia Marylandica, *Figwort*,
Scutellaria lateriflora, and other species,
Secale cornutum, *Ergot*,
Sesamum Orientale, *Bene plant*,
Sempervivum tectorum, *House leek*,
Senna Marylandica, *American Senna*,
Sinapis nigra and alba,
Solidago Virg. aurica, and other species,
Solanum, various species,
Smilax rotundifolia,
Spiræa tormentosa, and other species,
Symphitum Officinale, *Comfrey*,
Tanacetum vulgare, *Tansy*,
Thalictrum cornutrum, *Meadow rue*,
Tencorium Canadense, *Wood-sage*,
Thymus lepillus, *Thyme*,
Thuya occidentales, *White cedar*,
Tilia Americana, *Bass-wood*,
Travella cordifolia, *Cool-wort*,
Trillium, several species,
Triosteum perfoliatum, *Fever-root*,
Tussilago farfara, *Colts-foot*,
Typha latifolia, *Cat-tail*,
Ulmus fulva, and other species,
Urtica, various species,
Uvularia, *Bell-wort*,
Vaccinium, various species,
Verbena (two species), *Vervain*,
Veratrum viride, *Hellebore*,
Verbascum Thapsus, *Mullen*,
Vernonia peralta, *Devil's bit*,
Veronica Officinalis, *Speedwell*,
Viburnum, several species,
Vitis, many species,
Viola, several species,
Xanthium strumarium, *Sea-burdock*,
Xanthoxylum fraxineum, *Prickly ash*, &c., &c., &c.

D.

Bills of Mortality *for fifteen towns in the County of Franklin.*

Ashfield.—The town of Ashfield contained in 1800, 1741 inhabitants; in 1810, 1809 inhabitants; in 1820, 1748 inhabitants; in 1830, 1732 inhabitants; in 1840, 1579 inhabitants.

(FROM THE PARISH REGISTER.)

	Deaths.		Deaths.
In 1763	1	In 1770	4
1764	1	1771	5
1765	1	1772	2
1766	2	1773	9
1767	2	1774	5
1768	3	1775	2
1769	7		

The principal part of the above were infants.

	Deaths.		Deaths.
In 1808 -	40	In 1826 -	21
1809 - -	14	1827 - -	29
1810 -	13	1828 -	22
1811 - -	16	1829 - -	25
1812 -	17	1830 -	18
1813 - -	26	1831 - -	26
1814 -	31	1832 -	31
1815 - -	20	1833 - -	25
1819 -	23	1834 -	25
1820 - -	13	1835 - -	9
1821 -	13	1836 -	13
1822 - -	28	1837 - -	13
1823 -	14	1838 -	16
1824 - -	35	1839 - -	24
1825 -	35		

Deaths in Ashfield for 29 years, from 1808, 645. Average 22 a year and fraction.

1 Death in about 80 inhabitants; 2 over 100 years of age; 3 between 95 and 100; 5 between 90 and 95; 30 between 80 and 90; 42 between 70 and 80; 69 of consumption, since 1819.

Bill of Mortality *for the town of Bernardstown, from the Parish Register kept by the Rev.* Timothy Rodgers, *who politely furnished me with the following items.*

Bernardstown contained in 1790, 691 inhabitants; in 1800, 786 inhabitants; in 1810, 811 inhabitants; in 1820, 912 inhabitants; in 1830, 945 inhabitants; in 1840, 924 inhabitants.

	Deaths.		Deaths.
In 1810 -	9	In 1816 -	13
1811 - -	4	1817 - -	4
1812 -	10	1818 -	16
1813 - -	18	1819 - -	16
1814 -	18	1820 -	7
1815 - -	12	1821 - -	9

	Deaths.		Deaths
In 1822 -	9	In 1832 -	14
1823 - -	26	1833 - -	18
1824 -	13	1834 -	12
1825 - -	12	1835 - -	14
1826 -	15	1836 -	12
1827 - -	10	1837 - -	16
1828 -	7	1838 -	11
1829 - -	12	1839 - -	6
1830 -	12	1840 -	12
1831 - -	22	1841 - -	5

Of these deaths 79 were over 70 years of age. There have been 11 deaths over 80 years of age since 1832. Between 20 and 70, there have been 143 deaths since 1810 to 1841. Under 20 years, 169. In 1832, there were 24 people living in Bernardstown over 70 years of age. The whole averaging 77½ years. There were 9 over 80, and 1 above 90. Two people have died in this town over 98 years of age.

Henry W. Cushman, Esq., of Bernardstown, has furnished me with the following facts, an abstract of which he published in the Franklin Mercury in 1833. The whole number of deaths in the town in the last 21 years is 252, or 12 per annum. Assuming 900 as the average population of the town for the last 21 years, which is nearly the fact, only one in 75 have died annually. Of these 252 deaths in 21 years, previous to 1831, one was 98 years old; 3 over 90; 19 over 80; 37 over 70 years. Four-tenths of the whole number were under 10 years of age. Greatest number of deaths in 1828, when 26 died. Least in 1811 and 1817, four each year. In the year 1830, the population of Bernardstown was 945. On the 7th of January, 1832, there were 24 persons alive over 70, and 9 over 80 years of age. The average of the 24 persons was 77½ years. Of these 24 persons, only four are

now (1841) living. In 1831, five persons died of the following ages—92, 76, 73, 79, 88. The deaths in Bernardstown for 30 years past, have averaged one and a third per cent. of the population annually. Consumption of the lungs is a disease of rare occurrence in this town.

Mortality *of Buckland for sixteen years. From facts communicated to me by Dr.* Nathaniel G. Trow.

Buckland, in 1800, contained 1041 inhabitants; in 1810, 1007; in 1820, 1037; in 1830, 1039; in 1840, 1110.

	Deaths.		Deaths.
In 1824 -	13	In 1833 -	12
1825 - -	19	1834 - -	14
1826 -	22	1835 -	21
1827 - -	8	1836 - -	9
1828 -	12	1837 -	5
1829 - -	17	1838 - -	13
1830 -	17	1839 -	16
1831 - -	20		—
1832 -	30		248

Dr. Trow remarks that he can learn of no epidemics of a remarkable character. "The greatest mortality in the town mentioned was in 1832, when typhoid fever prevailed, of the same character which it now assumes. A few individuals have lived nearly to the age of 100 years, but as far as I can learn, none have exceeded that age. There are a large proportion of pneumonic affections, and consumption is evidently increasing. Cynanche trachedis is rare, but it sometimes occurs. Bronchocele is very common. Bilious affections, colic, diarrhœa, &c. are extremely common. Inflammation of the abdominal viscera, also, and especially of the mucous membrane during the fall. Diseases of the brain, spinal cord, apoplexy, inflammation, paralysis, are also frequent. Scarlatina prevailed as an epidemic in 1838. It showed

itself in numerous cases, in all its forms, from the most simple, to that of the most alarming severity; in one case producing death in six hours from the first attack, and in another, madness, equalling in severity, in a few hours, that of the most severe cases of hydrophobia. Diseases of the urinary and genital organs are not uncommon in this vicinity." Average deaths in Buckland, 17 and 2-tenths a year.

MORTALITY *of Coleraine. From facts communicated by Dr.* CHRISTOPHER DEANE.

Coleraine contained, in 1800, 2014 inhabitants; in 1810, 2016; in 1820, 1961; in 1830, 1877; in 1840, 1930.

Typhoid pneumonia prevailed in 1813, when there were

	Deaths.		Deaths.
In 1813 -	32	In 1838 -	30
1814 - -	20	1839 - -	40
1835 -	24	1840 -	17
1836 - -	32	1841 - -	33
1837 -	25		

Dr. Deane says, "I have no means of ascertaining the proportion between old and young, or of the different diseases; but, probably, there are many more young than old. I think the number of consumptions may be about one in eight. I can recollect no particular mortal epidemic. Dysentery has prevailed some seasons, but not to any alarming extent, and also typhus fever as an epidemic. Dysentery has prevailed some seasons, but no record has been kept of the number of cases from that disease. I am inclined to think that more deaths occur from lung fever, or inflammation of the lungs, and dropsy of the chest, than from all other diseases that prevail in Coleraine. We have but few remarkable instances of longevity in this town. One man died in 1813, aged 100. One in 1826,

aged 101, whose health had been remarkable through life. He died in April, and had been able to chop his fuel through the winter. I was called to him in his last sickness, which was lung fever; and it was remarked by his son, with whom he lived, that I was the first physician ever called to his father. We have now living in town, 57 persons between 70 and 80; 31 between 80 and 90; and 1 between 90 and 100."

Bill of Mortality *for Conway. Facts collected from the Town Records, with the assistance of Dr.* W. Hamilton.

Conway contained, in 1790, 2093 inhabitants; in 1800, 2013; in 1810, 1784; in 1820, 1705; in 1830, 1768; in 1840, 1394. Conway was incorporated in 1767. In that year there was one death.

	Deaths.		Deaths.
In 1770	2	In 1789	17
1771	4	1790	17
1772	7	1791	17
1773	7	1792	20
1774	9	1793	17
1775	20	1794	27
1776	25	1795	50
1777	73 Principally dysentery.	1796	16
1778	13	1797	21
1779	11	1798	22
1780	14	1799	15
1781	10	1800	19
1782	23	1801	13
1783	17	1802	14
1784	14	1803	84 Dysentery.
1785	18	1804	13
1786	7	1805	14
1787	34	1806	14
1788	15	1807	5

	Deaths.		Deaths.
In 1808 -	18	1824 -	25
1809 - -	24	1825 - -	28
1810 -	33	1829 -	19
1811 - -	26	1830 - -	15
1812 -	20	1831 -	34
1813 - -	28	1832 - -	12
1814 -	21	1833 -	27
1815 - -	25	1834 - -	22
1816 -	20	1835 -	20
1817 - -	14	1836 - -	24
1818 -	15	1837 -	16
1819 - -	20	1838 - -	24
1821 -	22	1839 -	13
1822 - -	24	1840 - -	21
1823 -	17	1841 -	11

Remarks on the bill of mortality for Conway: The first case of consumption occurred in 1792, as recorded. Since then there have been 76 deaths from this complaint. In the 71 years, in which the record has been kept, since 1770, there have been 54 deaths of people between 80 and 90, and 27 between 90 and 100; one at the age of 99; 2 at 96, and one over 100. It appears by the record, that the dysentery must have been unusually malignant and severe in the year 1777, and in 1803. Five have died of spotted fever, and two of cancer.

Average deaths 20 and 4-tenths a year. Average deaths in 50 years, one in 80 and 2-tenths.

Bill of Mortality *for the town of Deerfield, commencing in* 1787.

Deerfield contained, in 1790, 1330 inhabitants; in 1800, 1570; in 1810, 1570; in 1820, 1868; in 1830, 2003; in 1840, 1934.

	Deaths.		Deaths.
In 1787 -	5	In 1789 -	6
1788 - -	12	1790 - -	5

	Deaths.		Deaths.
In 1791	12	In 1817	19
1792	10	1818	18
1793	18	1819	19
1794	19	1820	6
1795	18	1821	19
1796	13	1822	18
1797	24	1823	17
1798	9	1824	13
1799	11	1825	21
1800	11	1826	18
1801	15	1827	14
1802	19	1828	26
1803	65 Dysentery.	1829	22
1804	15	1830	16
1805	17	1831	50
1806	19	1832	32
1807	31	1833	21
1808	26	1834	27
1809	11	1835	27
1810	19	1836	26
1811	14	1837	27
1812	27	1838	28
1813	18	1839	20
1814	33, 23 Adults.	1840	39
1815	20	1841	31
1816	26		

Eleven hundred and fifty-four deaths in 55 years.

Average 20 and a fraction a year. One death in 86 and a fraction. Between 95 and 100, 4; 20 over 90; 80 over 80; 233 over 70; 284 between birth and 4 years. Almost one quarter of the 1150 died over 70 years of age.

For the first 49 years there died of fits, 44; fever, 49; dropsy, 20; pleurisy, 13; palsy, 13; canker rash, 30; lung fever, 24; accident, 17; drowned, 20; suicide, 2;

homicide, 1; killed, 1; child-bed, 6; Angina Pectoris, 6; hydrocephalus, 12; insanity, 2; burns and scalds, 8; croup, 14; apoplexy, 7; cancer, 8; colic, 13; old age, 61, &c. In 55 years, there have died of consumption 144, of dysentery, twice epidemic, 82.

Bill of Mortality *for Gill. From facts communicated by Dr.* Joel Lyons.

Gill contained, in 1800, 700 inhabitants; in 1810, 762; in 1820, 802, and in 1830, 864; in 1840, 778.

	Deaths.		Deaths.
In 1806 -	3	In 1825 -	18
1807 - -	3	1826 - -	14
1808 -	8	1827 -	11
1809 - -	3	1828 - -	7
1810 -	13	1829 -	15
1811 - -	7	1830 - -	5
1812 -	9	1831 -	14
1813 - -	31	1832 - -	14
1814 -	12	1833 -	25
1815 - -	13	1834 - -	11
1816 -	12	1835 -	15
1817 - -	19	1836 - -	11
1818 -	17	1837 -	14
1819 - -	9	1838 - -	14
1820 -	16	1839 -	8
1821 - -	11	1840 - -	9
1822 -	15	1841 -	11
1823 - -	14		—
1824 -	4	Total - -	434

In the 36 years nearly, there have been 25 over 80, one over 90, one 99, one over 100. Over 70, 83. 10 and under, 166, including still-born. Consumption, 53. Average age, 63½.

Dr. Lyons, in his letter to me, observes, that "the most prevalent disease, since the commencement of 1813, has been, what we now call, lung fever. Previous to that time, up to 1806, and several times since, dysentery has prevailed, but not as a general epidemic; however, bowel complaints in children, and affections of the lungs, are the most common, and gastric fevers in adults; whilst lung fever claims old people for its victims."

Average deaths in Gill in 36 years, from 1806, 12 a year. One death in about 60 and 5-tenths.

BILL OF MORTALITY *for Greenfield. From facts presented by* DAVID WILLARD, Esq.

Greenfield contained, in 1790, 1498 inhabitants; in 1800, 1256; in 1810, 1165; in 1820, 1165; in 1830, 1540; in 1840, 1754.

	Deaths.		Deaths.
In 1790	5	In 1809	8
1791	9	1810	17
1792	10	1811	10
1793	13	1812	14
1794	10	1813	17
1795	15	1814 (imperfect)	5
1796	9	1817	16
1797	8	1818	18
1799	8	1819	17
1800	7	1820	17
1801	17	1821	17
1802	68, 57 Dysentery.	1822	11
1803	21	1823	16
1804	14	1824	20
1805	8	1825	13
1806	15	1826	27
1807	9	1827	14
1808	16	1828	21

	Deaths.		Deaths.
In 1829 -	5	In 1837 -	24
1830 - -	17	1838 - -	24
1831 -	22	1839 -	17
1832 - -	19	1840 .. -	22
1833 -	16	1841 -	28
1834 - -	14		—
1835 -	13	Total - -	794
1836 - -	17		

Average very nearly 16 a year, for 50 years. 1 death in 90 and 1-tenth.

Mortality *of Hawley. From facts communicated by Gen.* Thomas Longley.

Hawley contained, in 1800, 878 inhabitants; in 1810, 1031; in 1820, 1089; in 1830, 1037; in 1840, 931.

Gen. Longley observes, that "it appears, for 32 years, commencing with 1800, the average deaths in Hawley was 10, a fraction over one per cent. For eight years, commencing with 1832, the average of deaths was 14 in a year. In 1839, the deaths numbered 21, eighteen of whom were adults, several between the ages of 80 and 90 years, three in one family. The most prevalent complaints, according to Dr. Smith, are inflammatory." The canker-rash prevailed in Hawley in 1794, and in 1830. There have been a few mortal cases of spotted fever. The consumption is considered more prevalent than 30 years ago. Three have died between 95 and 100, one nearly 99, 4 between 90 and 95. Of 14 who have died in Hawley, their ages amount to 1248. There are now living in Hawley, several people over 90 years of age, among the rest, Edmond Longley, Esq., 95 in Nov. 1841. There are now living 12, the sum of whose ages is 1064.

In 1809 there were 11 deaths; 6 of peripneumony; 1 infant; 1 laudanum; 1 Angina Maligna. In 1810 there were 12 deaths; 1 old age; 1 peripneumony; 3 typhus; 3 dropsy; 2 spotted fever. In 1811 there were 14 deaths; 2 apoplexy; 2 consumption, &c. In 1812 there were 9 deaths; 1 hydrocephalus; 1 hydrothorax; 2 peripneumony. In 1813 there were 10 deaths; 1 peripneumony; 5 infants; 3 typhus fever. In 1814 there were 4 deaths; 1 scrofula; 2 infants; 1 typhus fever.

Average in 41 years, 11 and 2-tenths. One death in 92 and 7-tenths.

Bill of Mortality *for the town of Heath. From facts communicated by Dr.* Joseph Emerson.

Heath contained, in 1800, 604 inhabitants; in 1810, 917; in 1820, 1122; in 1830, 1199; in 1840, 904.

	Deaths.		Deaths.
In 1817 -	14	In 1824 -	19
1818 - -	7	1825 - -	20
1819 -	7	1826 -	10
1820 - -	10	1827 - -	9
1821 -	13	1828 -	14
1822 - -	5	1829 - -	7
1823 -	10		

The whole number of deaths in Heath, from 1817 to 1829 inclusive, is 150. Of whom 20 died of consumption, 20 of dysentery, and 12 of pneumonia and pleurisy. Old age, 15. Dyspeptic and liver complaints, 6; fevers, 5; dropsy, 6; jaundice, 2; croup, 3; cancer, 3; puerperal fever, 3; phrenitis, 4; hooping cough, 3, &c.

From 1785 to 1841, there have been ten deaths of people over 90 years of age, one 96. From 80 to 90, there have been 41 deaths; from 70 to 80, 33. Average 11 and a fraction a year.

Dr. Emerson observes, that "genuine typhus fever is hardly known in this town. Other kinds of fever not in-

flammatory are as rare as typhus. Bronchocele is very uncommon. A few sporadic cases of dysentery, occur every year in the hot seasons, and they are for the most part, easily manageable. A number of fatal cases occurred during the years 1824, '25, '27, and '28. Cases of croup happen here every year, but whether the disease is more frequent than in the towns on Connecticut river, I have not the means of determining. Perhaps a fatal case has happened as often as once in 6 years. Consumptions are frequent, and certainly not on the decline. Of those noted as dying of old age, a majority, perhaps, were affected with catarrhal complaints, or diseases about the heart, or kidneys, or urinary organs; indeed death simply from old age, or a universal and equal decay of the powers of life, is, in my experience, a rare occurrence."

Mortality *of Leyden. From facts communicated by Dr.* W. A. Wilkins.

Leyden contained, in 1800, 1095 inhabitants; in 1810, 1009; in 1820, 674; in 1830, 796; in 1840, 646. Dr. Wilkins commenced practice in Leyden in 1832, and the bill of mortality commenced that year, no other bill having been kept.

	Deaths.		Deaths.
In 1832 -	20	In 1838 -	6
1833 - -	5	1839 - -	15
1834 -	6	1840 -	9
1835 - -	6	1841 - -	14
1836 -	7		—
1837 - -	10	Total - -	98

Dr. Wilkins observes, that, of this number, 32 were over 70, 12 between 70 and 80, 19 between 80 and 90, one 97. He says, that he cannot ascertain for a certainty that any person has died in town over 100 years of age; although, three or four have died here, whose ages would not vary much from that. "One of our inhabitants tells

me, that he is quite confident that two of the number were over 100. There are now living, in Leyden, 33 persons between 70 and 80, 12 between 80 and 90, and one between 90 and 100—William Dorrell, of wooden shoe notoriety. About one-fourth of the deaths were from consumption, for the most part between the ages of 18 and 35, at which period of life there seems to be a greater predisposition to that disease. Four or five cases were accidental."

Bill of Mortality *for Northfield. From facts taken from the Parish Register by the Rev. Mr.* Everett.

Northfield contained, in 1790, 868 inhabitants; in 1800, 1049; in 1810, 1218; in 1820, 1584; in 1830, 1757; in 1840, 1658.

	Deaths.		Deaths.
In 1750	1	In 1770	8
1751	4	1771	0
1752	2	1772	6
1753	4	1773	6
1754	8	1774	9
1755	3	1775	15
1756	8	1776	15
1757	5	1777	7
1758	2	1778	2
1759	4	1779	7
1760	1	1780	8
1761	6	1781	3
1762	3	1782	6
1763	1	1783	5
1764	3	1784	4
1765	3	1785	8
1766	4	1786	10
1767	8	1787	9
1768	4	1788	8
1769	2	1789	8

	Deaths.		Deaths.
In 1790 -	11	In 1794 -	6
1791 - -	7	Not recorded,	11
1792 -	6		—
1793 - -	7	Total - -	226

Of the 226 deaths, from 1750 to 1794 inclusive, 95 were infants, from 8 years of age downwards. One person died in Northfield, in 1840, over 100 years of age. In the above record, 2 died between 95 and 100, and 3 between 95 and 100. Rev. Mr. Hubbard was pastor of the church, from 1750 to 1794, and kept the above register. Of the deaths recorded by Mr. Hubbard, there were from accident, 1; apoplexy, 2; killed by Indians, 2; burn, 1; consumption, 13; child-birth, 7; cancer, 1; dropsy, 1; drowned, 2; colic, 1; epileptic fit, 1; fever, 1; measles and putrid fever, 1; palsy, 2; rattles [*croup*], 5; small-pox, 1; worms, 2.

The first death recorded by Mr. Hubbard's successor, Mr. Allen, was in 1795, 4, all under 6 years of age. In 1796, 7; 1 fits; 1 old age; 1 consumption; 1 fever; 1 tumor of the heart. In 1797, 17; two 95, one 82, one 85, one 73, one 62; 2 fits; 2 small-pox; 1 old age; 1 hydrocephalus; 1 fall; 1 jaundice; 1 consumption, &c.

Bill of Mortality *for Rowe. From facts communicated by Dr.* Humphrey Gould.

Rowe contained, in 1800, 575 inhabitants; in 1810, 839; in 1820, 831; in 1830, 716; in 1840, 700. Thirty-six years complete from the records of the Rev. P. Smith. The last eight as perfect as I could obtain from the records of the Rev. Mr. Stearns, and Dr. Gould.

	Adults.	Children.		Adults.	Children.
In 1788 -	8	7	In 1792 -	13	7
1789 -	6 in all		1793 -	5	3
1790 -	5 in all		1794 -	13	10
1791 -	6	5	1795 -	12	7

	Adults.	Children.		Adults.	Children.
In 1796	6	5	In 1823	8	3
1797	11	9	1824	18	5
1798	4	2	1825	16	1
1799	2	0	1826	16	3
1800	6	4	1827	12	5
1801	9	4	1828	8	4
1802	9	7	1829	15	7
1803	25	17	1830	10	4
1804	16	10	1831	17	4
1815	24	13	1832	7	3
1816	6	5	1833	8	1
1817	14	15	1834	6	3
1818	12	5	1835	12	4
1819	14	9	1836	9	0
1820	9	5	1837	8	0
1821	11	3	1838	6	0
1822	15	7	1839	11	2

Average number of deaths 10 and 8-tenths a year. Three deaths over 100, one 106, and two 101, 6 between 80 and 90. Living, 3 between 80 and 90, 3 between 90 and 100. Dr. Gould observes, that "the person who lived to 106 years of age, was grandmother of Deacon Thomas of this place. Her husband died at 83. Their son, father of Deacon Thomas, died at 92, a sister at 86. A brother of Mrs. Thomas lived to 107 full years. His name was Matthew Watson. He died in Barrington, R. I.

The deaths, according to population, agree nearly with those in Deerfield. The proportion of deaths, the latter part of the time, is less among children than adults. I account for this from the fact, that there are born yearly, not more than a third as many children now, as in the early settlement of the town. Then the people, the first settlers, were young and prolific. Now the young leave us, in the pursuit of other homes, and none but the barren and unprolific are left behind."

I cannot do better in this place than to give the following excellent letter of Dr. Gould, on this subject, in reply to some queries which I propounded to him. I inquired of him whether fevers have prevailed more in winter than in summer? In reply, he says, "My observations extend only eight years. My answer to this interrogatory is, that fevers are much more prevalent in summer than in winter. It is seldom that I see a case of fever in the winter season. I do not now recollect a single case, though it is very possible there may have occurred cases during the time of which I write." Has typhus fever prevailed at all in Rowe? "I answer, that since I have been in Rowe, I have not seen a single case of typhus fever. Certainly not one, if we take Dr. Smith's definition." Do you have any cases of real croup? "I have seen but one case, which I considered real croup, since I have been here. I have reason to believe, a child died last year with it, under the care of another physician. My case recovered." Have not Consumption, Pneumonia, Bronchocele, Leucorrhœa increased among you for a few years past? "I have seen but one case of Bronchocele in this town, or in all this region. Within the eight years, pneumonia has frequently prevailed, especially in the spring, but I have no reason to believe that it is more prevalent than formerly. Leucorrhœa is a frequent disease, but not more common than in former years. Of Prolapsus Uteri, I can say, it is almost epidemic in this region. I have been harassed, not quite to death, with this complaint, but have had my patience tried by it. Some cases have been induced evidently by Leucorrhœa, but it has generally arisen from other causes." "I have a melancholy picture to present to you of consumption. This complaint is not only on the increase among us, but extremely prevalent. My heart sickens within me, when I reflect upon the horrid nature of this disease, and of the

many victims that have been within a few years; yes, within one year, been immolated by it, and the powerless nature of medical agents. Within one year, from this year, nine adults fell a prey to that fell destroyer, besides one of our townsmen, who died abroad. Population 788. Of these, three were males and seven females. I sometimes read of the great success that has attended medical gentlemen in the treatment of this disease, but I have never had the good fortune to be of much use to my patients towards effecting a cure; and yet, my luck has been about equal to that of my brother physicians, with whom I have been acquainted. Most of these consumptive persons evidently possessed an hereditary predisposition to the complaint of which they died. A few years before I came to Rowe, scarlet fever prevailed epidemically."

Mortality *of Shelburne. From facts communicated by Rev.* Theophilus Packard, Jr.

Shelburne contained, in 1790, 1183 inhabitants; in 1800, 1079; in 1810, 961; in 1820, 1022; in 1830, 985; in 1840, 1034.

	Deaths.		Deaths.
In 1828	16	In 1835	13
1829	12	1836	13
1830	13	1837	9
1831	12	1838	8
1832	10	1839	14
1833	11	1840	14
1834	11	1841	12

According to Mr. Packard, in the Franklin Mercury, of February 23, 1841, the whole number of deaths in Shelburne, in 12 years, was 140, of which there were, under 5 years, 39. Between 5 and 10, 1. Between 10 and 20, 9. Between 20 and 30, 14. Between 30 and 40, 11. Between 40 and 50, 13. Between 50 and 60, 8. Between 60 and 70, 14. Between 80 and 90, 10. Between 90 and

100, 4. The population of this town has not varied for many years much from 1000. In 1810 it was 1018, and in 1840 it was 1034. The table, for 12 years, shows the whole number of deaths to be 140, giving a yearly average of 11 and 2-thirds; and assuming ten hundred and twenty as the medium of population during those years, which, probably, is not far from the truth, we have one death for every 96 of the population each year. (I make the average about one in 87. S. W. W.) The greatest number of deaths in any one year was 15; the least 8. The number of deaths of consumption was 28, or one in five, of the whole number of deaths. Of the 140 deaths that have occurred in this town, for the 12 years recorded, above 45 of them were after the individual arrived at 60 years of age and upwards, or one to 3 and 1-9th, and one in about 4½ arrived at 70 years, and one in 80 years and upwards. At the rate of mortality which this town has had for 12 years past, it would take about 96 years for a number equal to the whole population to die.

Mortality *of Shutesbury. From facts communicated by Dr.* Albert White.

Shutesbury contained, in 1800, 930; in 1810, 930; in 1820, 1026; in 1830, 931; in 1840, 997 inhabitants.

No regular bill of mortality has been kept for Shutesbury; but Dr. White observes, "I calculate with others at 15 deaths a year. I believe I have the number of deaths from consumption nearly correct for 12 years, the time which I have been in town. The number from consumption was 56, for 12 years. In the last 6 years, 29. Ten died of consumption, over 70 years of age. Eighteen died in the 12 years, over 70. There are now living in town, 68 people over 70 years of age, and a number of them are from 83 to 92 and 98. Mrs. Pratt is living in town, at the age of 98, and Michael Vermont, at the age of 92."

Ephraim Pratt died in this town, I believe in 1816, at the age of 117. I understand that one of his descendants lived to the age of 104. S. W. W.

MORTALITY *for Warwick. From facts presented by Rev.* PRESERVED SMITH.

Warwick contained, in 1800, 1233 inhabitants; in 1810, 1227; in 1820, 1256; in 1830, 1150; 1840, 1154.

I was so unfortunate as to lose Mr. Smith's first letter to me, but he afterwards forwarded to me the following abstract:

"Total number of deaths in Warwick, in 26 years, 443. Average 17. 116 under 10 years of age; 60 over 80; 13 over 90; 94 of consumption, under 60 years; 30 of typhus fever; 11 of casualty; 6 of suicide; 4 of cancer; 17 of intemperate habits; 11 of dysentery, in 1822; 16 of dysentery, in 1824; 7 of consumption, in 1827; 5 of typhus fever, in 1839. I would add there have been, in the 40 years past, 626 deaths. Averaging a little over 15 a year.

BILL OF MORTALITY *for Whately. Facts obtained from the Parish Register kept by Rev.* RUFUS WELLS, *principally. I was assisted in the research by Dr.* CHESTER BARDWELL.

Whately contained, in 1790, 736 inhabitants; in 1800, 773; in 1810, 801; in 1820, 1076; in 1830, 1111; 1840, 1104.

	Deaths.		Deaths.
In 1771 -	2	In 1778 -	12
1772 - -	4	1779 - -	7
1773 -	3	1780 -	5
1774 - -	7	1781 - -	4
1775 -	4	1782 -	2
1776 - -	10	1783 - -	3
1777 -	13	1784 -	7

	Deaths.		Deaths.
In 1785	5	In 1809	11
1786	7	1810	16
1787	12	1811	6
1788	10	1812	15
1789	7	1813	23
1790	8	1814	22
1791	6	1815	15
1792	6	1816	17
1793	11	1817	16
1794	9	1818	8
1795	17	1819	12
1796	16	1820	15
1797	6	1821	16
1798	13	1822	14
1799	6	1823	13
1800	7	1824	9
1801	4	1825	8
1802	13	1826	23
1803	11	1827	15
1804	10	1828	16
1805	8	1829	6
1806	8	1830	27
1807	9	1831	9
1808	11		

Whole number of deaths in Whately, in 61 years, 619. Average 10 and 15-hundredths a year. 1 death in 82 inhabitants. 21 cases of consumption recorded in 61 years. I regret that I did not obtain the ages.

MORTALITY *of Plainfield. Plainfield is in Hampshire, adjoining Franklin, near Hawley and Ashfield.*

I give the following table from Porter's History of Plainfield. Population, in 1835, 983.

	Deaths.		Deaths.
In 1785 -	2	In 1810 -	15
1786 - -	2	1811 - -	11
1787 -	8	1812 -	12
1788 - -	6	1813 - -	17
1789 -	2	1814 -	16
1790 - -	3	1815 - -	13
1791 -	6	1816 -	11
1792 - -	7	1817 - -	12
1793 -	3	1818 -	14
1794 - -	18	1819 - -	14
1795 -	2	1820 -	7
1796 - -	11	1821 - -	12
1797 -	8	1822 -	10
1798 - -	0	1823 - -	13
1799 -	10	1824 -	15
1800 - -	13	1825 - -	13
1801 -	18	1826 -	16
1803 - -	30	1827 - -	8
1804 -	15	1828 -	9
1805 - -	11	1829 - -	13
1806 -	15	1830 -	17
1807 - -	14	1831 - -	13
1808 -	18	1832	7
1809 - -	9	1833 - -	9

Four deaths between 90 and 100. Eleven between 80 and 90. Nine between 70 and 80.

The scarlet fever prevailed in 1794, and in 1803. In 1806, the typhus fever prevailed. There was no death in 1798. No instance of suicide or murder in the town.

[NOTE.—The census of the different towns, for 1840 has, in the absence of the author, been added by the Committee. By inadvertence, the numbers were taken from the State census, which was made for

the apportionment of Representatives, and in which certain small classes of inhabitants were omitted. The numbers by the United States' census, which should have been used, are as follows: Ashfield, 1610; Bernardstown, 992; Buckland, 1084; Coleraine, 1971; Conway, 1409; Deerfield, 1912; Gill, 798; Greenfield, 1756; Hawley, 977; Heath, 895; Leyden, 632; Northfield, 1673; Rowe, 703; Shelburne, 1022; Shutesbury, 987; Warwick, 1071; Whately, 1072.]

ARTICLE II.

PULMONARY CONSUMPTION,

ITS CAUSES, SYMPTOMS AND TREATMENT.

BY CHARLES W. WILDER, M. D.

FELLOW OF THE SOCIETY.

[Read at the Annual Meeting, May 31, 1843.]

Mr. President, and Gentlemen of the Society,

In compliance with the appointment made by the choice of the Counsellors of this Society last year, I appear before you this day, neither insensible of the honor conferred upon me, nor of the disproportion of my limited knowledge and capacity, under the most favorable auspices, to the acceptable discharge of this responsible duty; and more especially do I feel that I am justly chargeable with presumption, in attempting to interest you under the circumstances in which, by the allotments of Providence, I have been obliged to prepare for this hour. Afflicted with typhous fever and its consequences for more than two months, with inflammation and disease of my eyes at least four months, with bronchitis and pulmonary catarrh for more than two months, in quick succes-

sion,—these are the circumstances to which I allude. I had contemplated the selection of a historical subject, requiring much time and labor, had my health permitted. More than once, within the last five months, have I decided that I ought to and must resign the office assigned me into the hands of those who appointed me to it; and I should have done it, but for the early day in February on which the last stated meeting of the Counsellors happened, to which when my attention was called, I found the time too short to get my resignation before them at that, their last stated meeting. I have therefore selected, as the subject of this discourse, PULMONARY CONSUMPTION.

Phthisis is of so frequent occurrence among us, that the inquiry, Can nothing further be done to check its prevalence? is one of deep interest to our entire community. When it invades the family circle, and selects as its victims, as it most commonly does, its fairest and best specimens of moral and intellectual promise, the all-absorbing question, Can nothing be done to stay its onward progress to a fatal termination? is propounded with intense solicitude.

The former inquiry naturally invites attention to, and an investigation of, its causes, that they may be removed, or more cautiously avoided; the latter, to a consideration of its phenomena and specific nature, that some philosophical and useful practical deductions may be made, relative to its cure.

Before entering upon the consideration of the causes of phthisis, allow me, by way of digression, to

remark, that it seems exceedingly difficult so to train our minds, as not to be influenced *much* by the speculations and excitements of the age in which we may happen to live. Ultraism invades every department of science, medical by no means excepted, and often, in an unguarded moment, throws from its track the patient, noiseless observer of its fundamental laws, by a skilful exercise of its hallucinating power over the intellect, dazzling, bewildering and confounding the mind, till its fancy dethrones its legitimate sovereign, reason, and weak credulity or cold skepticism takes the place of careful observation of facts, and of sound logical deductions therefrom. Both of these states of mind must of necessity be fatal to true scientific progress, or the success of art based upon scientific laws; but their practical results may be quite similar, in obedience to the rule, that "the two extremes meet." Doing every thing and doing nothing with medicines, are fancy's follies, equally absurd. The credulously hallucinated mind seizes upon the former as a principle of action, with enthusiasm, and in too many instances, perhaps, accelerates his patient's progress to the tomb; while the skeptically hallucinated adopts the latter as his polar star, folds up his hands, in reliance upon the expectant plan, and coolly witnesses, to its fatal termination, the daily ravages of a curable disease; and thus the two extremes meet in death. The middle course, although steep, and rugged, and laborious to pursue, is the only road to high practical eminence in the application of the science of medicine to the art of healing. Let us not,

henceforth, leave to arbitrary empiricism the appropriate work of science, but, by patient anatomical and pathological investigation, follow truth from cause to effect, and from effect to cause, till the diseases of man shall be understood and controlled, as far as the capacity of human intelligence and human skill shall be allowed to approximate.

CAUSES OF PHTHISIS.

Dr. Marshall Hall enumerates the causes of a tuberculous diathesis under eight distinct heads:

1. Hereditary disposition.
2. Cold and damp soil or air.
3. Insufficient food.
4. Insufficient clothing.
5. Insufficient exercise, air or light.
6. The depressing passions.
7. Attacks of fever, inflammation, dyspepsia, &c.
8. The abuse of remedies.

These causes, taken in their broadest sense, include *much*, but I think not all, that predisposes to or excites the disease under consideration, in our own country. He has left out of the catalogue excessive eating and drinking, to which are justly referable many cases of genuine phthisis, and in subjects, too, having no constitutional disposition thereto. He has added a remark, so general in its import,—viz., "that whatever impairs the strength and tone of the system, favors the formation of tubercle,"—as to include the cause, perhaps, which I have mentioned. These causes are

stated, by Dr. Hall, under general heads, and in classes, the details of which are sufficiently understood, perhaps, by the faculty; and if physicians would do their duty, as the guardians of the health of those with whom they are connected by professional and social intercourse, and reduce the generals to their particulars, as individual cases might require, it would be superfluous to detail to an audience of physicians any of the causes of consumption. But as the object of this discourse is usefulness, at the risk even of being justly chargeable with repetition, I shall contemplate briefly in detail some of the prominent causes of this destructive malady.

The limits of a single discourse will not allow of a minute consideration of all the circumstances operating as remote or immediate causes, expressed and implied under the eight general heads arranged by Dr. Hall; but only such as the writer may deem the most important, and more particularly applicable to the conditions, habits, customs, avocations and notions of our own immediate community, with a view to call a more general attention to a subject inferior to few others in importance,—having, also, an influential connection with intellectual power and moral beauty. The physical condition of the writer has been such, for the last eight months, as to allow him to think and write but for a very brief period at once; hence, exact systematic arrangement of ideas, expressed by a choice selection of words, without improper ellipses or redundancies, will not be attempted. But if he shall be able, in any manner, to state some facts, and make

some speculative suggestions, in relation to his subject, that shall result in any good to mankind, he will be satisfied.

Hereditary Disposition.—This is placed at the head of the causes of a tuberculous diathesis, by Dr. Hall. Constitutional tendency to a disease must have had a cause and an origin. The abstract question of the origin of physical evil and suffering, I shall not stop to discuss. It would be foreign to my present purpose. That constitutional tendencies to certain diseases, among which is pulmonary consumption, do exist, is a fact of observation, which I think no intelligent physician will deny. That these tendencies, however first induced, are susceptible of modification, extenuation, and even complete eradication, most physicians will probably admit. Who will deny that the constitution of man is capable of almost indefinite improvement? If susceptible of deterioration, to the lowest state of vitiation, by analogy, it is also capable of the highest state of perfection consistent with the law of natural decay. If this be so, are not health and disease set before us, based upon the same immutable law as human freedom in morals? Intelligent and well-directed human effort, then, is what is wanted to improve the physical as well as the moral condition of man. Should not the physician be the pioneer in this important and philanthropic enterprise?

Insufficient Food.—Whatever the facts may be with regard to the insufficiency of the food of the poor

on the island of Great Britain, or on the continent, there cannot be much suffering felt or many diseases caused in our own country for the want of substantial food. The materials for wholesome and substantial living are here produced in such abundance, and so accessible to all who are disposed to make but a moderate effort to obtain them, that even the poorest classes among us need not physically suffer by insufficient nutriment, unless through incapacity or a defective education in the preparation of the raw material for digestibility and nutrition; and our paupers are certainly well supplied with suitable and sufficient food, and many of the luxuries of life. In our country towns, the poorest class of our citizens are usually served with animal food once or more every day; and most of the families, called poor, eat more animal food, and potatoes well moistened with melted animal fat, than the independent yeomanry and mechanics that are familiarly called "well off."

Insufficient food, therefore, as it seems to me, cannot with justice be ranked among the causes of a tuberculous diathesis, in New England; while excessive eating, improper food, and stimulating drinks might with much propriety be substituted therefor. Cases of consumption and of a cachexia, induced by the habitual use of spiritous liquors, are too familiar to need proof; while no statistical table will be required by the experienced physician, to show the fact that gluttony, and even a less free indulgence at the table, produce more cases of acute and chronic dyspepsia, with the sombre catalogue of neuralgic symp-

toms usually attendant,—inflammation, ephemeral fevers, and functional diseases,—than any other and all other causes combined. These local and constitutional disturbances directly tend to weakness of the system, and to break up its healthy balance, and thus to lay the foundation for some grave organic disease. Would there were more poetry than truth in the ancient lines,

> "The first physicians by debauch were made;
> Excess began and sloth sustains the trade."

The temptations to excess in the quantity of food, consist chiefly in the variety with which the appetite is excited; hence the danger and the evil of a great variety of rich food at any one meal. The true meaning of a simple diet is but poorly understood. It should be illustrated by every physician's table. The example will have a good influence, and our advice to others will then be thought to be sincere. I deem it almost impossible properly to regulate the diet of children and youth, in the midst of a great variety of rich food. Temptations to overload the stomach are much too common for their safety. The variety with which the tables of our public houses are furnished, is a temptation too powerful for the resistance of a keen appetite, unless it has been under the habitual control of caution and self-denial. Private tables are often more enticing and ensnaring than those of our public hotels. The family tables, generally, and almost universally, are quite too often loaded with savory and stimulating meats, made more

so by condiments of more or less pungency, with a considerable variety of vegetables at certain seasons of the year, and potatoes at all seasons,—but not always of the best quality, or properly cooked to be easily digested,—with warm or hot new bread, to be eaten with butter and cheese, as a kind of superstructure upon a heavy and solid base, for the health and best good of the community; while milk, with light, old bread crummed into it, is almost out of date, even among children. I do not say there has been no improvement, within the last twenty years, in the families of physicians and others, in simplifying the diet, and more especially the breakfast and supper. Unseasonable, great dinners, too, I rejoice to believe, are falling into disrepute in our cities. There is yet room for further and greater improvements, both in the quantity and simplicity of our food. Adopt the latter, and it will do much to regulate the former. "No man," said the sage Franklin, "was ever sorry for eating too little."

Insufficient Clothing.—This cause is as often, perhaps, found affecting the fashionables, who possess the means of self-protection by suitable and sufficient clothing, as the very squalid poor. If fashion but speak the word, the coat and vest must be thrown open, to display to the best advantage a fine and beautiful linen bosom, which alone,—although it may be adorned by a costly diamond, set in the most precious metal,—is wholly inadequate to the safe protection of the chest from the rude and cold blasts

of a fickle New England atmosphere, during the inclement seasons of the year. The feet, too, must submit to fashion's power, however extravagant and arbitrary she may be in her exactions. If she so direct, the toes and feet must be so compressed as to impede or wholly suspend the circulation of the blood, in the minute vessels of the skin; or they must be protected from cold and dampness by nothing more substantial than the most delicate calf or kid leather, with soles, perhaps, from the sixteenth to an eighth of an inch in thickness, although the mercury may stand at 10° below zero, or the water and snow may be from four to twelve inches deep. The female, too (I speak of her always with sincere respect), is no less exposed to the effects of this cause than the male, and often more. If the goddess, fashion, but so decree (and who is able to resist her mandate?), on extraordinary occasions at least, she must be decked with the mere externals, composed it may be of the most delicate and thin fabrics, with arm and neck unprotected, the beauty and delicacy of which may be exposed, not only to the admiring gaze of her social circle, but also to the chilling winds of winter. How often are the glands of the neck, or the mucous membrane of the nose, throat and lungs, thrown into a state of irritation or inflammation, by such unwise exposures! Is it said there is no necessary connection between inflammation and tubercle or true phthisis? Allow this question to be unsettled, I would inquire if any of the inflammatory affections of the respiratory organs are beneficial to the general

health? When often repeated, do they not always impair, more or less, the mucous texture of those organs, and thus interfere with their healthy operations? Thickening or other lesions of this membrane are often of lasting and serious consequence, undermining and breaking down the constitution. Thus common colds, bronchitis, pulmonary catarrh, &c., are always liable to act as the remote, and too often prove to be the exciting, cause of pulmonary consumption. The habitually intemperate, with their families, may, and often do, suffer from insufficient clothing; but most of the evils resulting from it must be voluntary, or through ignorance of the wants of the body, during the inclement seasons, and the vicissitudes of our climate, for which prudent forecast should always provide. This cause, efficient and operative, as it seems to me it certainly is, can and ought to be removed. Fashions can be changed, and every person, of comfortable health and ordinary capacity, in our abundant and liberal country, can be fully supplied with sufficient clothing from the proceeds of moderate labor; and in cases of honest inability so to provide, the deficiency is generally, and always should be, cheerfully supplied from public or private charities.

Insufficient Exercise, Air or Light.—That my remarks upon this general head may be the better understood, I wish, first, to state, that what has been generally believed to be true, viz., that more females die of consumption than males, is now established by statistical facts. The result of the research of the

indefatigable M. Louis upon this point, is, that the proportion of deaths by consumption of men and women, is as 55 to 72. Although I know of no data by which to settle this question of proportion for our own Commonwealth, from the best information I have been able to obtain from others, with my own observations and notes, I am constrained to believe that three females, at least, die of phthisis, to two males. The cause of this difference has not, to my knowledge, yet been satisfactorily explained. The fact is melancholy, and the highest interest of mankind demands deep and earnest inquiry into its cause, or causes, that they may be removed or shunned; and should I make some plain remarks, and state some homely or unwelcome truths, touching the subject, I hope to be forgiven by the reflecting and candid portion of our sensible and better halves, who are lovers of truth, and always alive to duty and the best interests of our race. Let not the following remarks upon exercise be understood to recommend female slavery in domestic labor, to the neglect of the cultivation of the intellectual and moral sciences; no such meaning is intended, but a suitable economical and healthy systematic division of time, for the culture of the mind and the proper development of the physical system. Both are indispensable.

A neglect of suitable exercise disposes to a tuberculous diathesis. The invigorating effects of proper exercise soon pass away; hence it must be daily taken, if we would avail ourselves of its benefits. It is the same to the health, strength and firmness of the

system, as food is to its life. We are made for activity. We see this innate principle illustrated in the unrestrained child, who is constantly active, if health attend him, during his waking hours. We witness the rapid development of his physical powers from year to year, under this wholesome provision of the God of nature. Herein we are furnished with the true key, by which to unlock the store-house of knowledge in relation to this branch of physical training, as a preventive of the diathesis so favorable to the formation of tubercle. It is action, unimpeded and unshackled action, that gives strength and firmness to organized matter. It promotes the healthy secretions, invigorates absorption, and balances the circulating fluids of the system. It is absolutely indispensable, to preserve the natural appetite for simple food, the perfect digestion, assimilation and animalization of the natural nutriment of the system. We can therefore no more habitually disobey this law of our natures with impunity, than we can assume the functions and powers of the amphibia. It should be cheerfully complied with, to its full extent. How absurd, then, is it, to bind down the elasticity of God's workmanship by artificial, mechanical appliances, in obedience to vain fashion or arbitrary tastes in dress! How often do mothers violate or counteract this established law, in the early management of their children, more especially their female children, by improperly adapted clothing. How much such restraints and confinement of the muscles and joints contribute to the early formation of tubercle, who can

tell? Who shall declare how long the seeds of disease, thus early sown, shall remain inactive, or when they will act "like thorns in the flesh?"

May not children very early receive physical as well as moral impressions, which can never be eradicated? Let this idea have its proper practical influence. Why is it that so many more females die of consumption than males? Are not both sexes exposed alike to its hereditary tendencies? If so, we must seek for other causes to account for the difference. May not their different early management be plausibly suggested as one probable cause? In the school-room they may suffer alike by confinement, or insufficient air; but at home, their conditions are often widely different. While the male is let loose, to play and sport in the free and pure air, the female is confined to her seat, and that, too, perhaps in the close and heated room. It may be said, that many of the female duties are best performed in a sitting position. Grant it, but children and youth must never be confined to that position but a short time at once. The injury to health and constitution is too disproportionate to the temporary, pecuniary profit it may afford. The constitutional perfection of the female is of paramount importance, inasmuch as the mother, probably, imparts more influences for weal or for wo to her offspring than the father. Whether we contemplate this truth in a physical, moral or intellectual point of view, its vast importance must be seen, and it calls for serious, practical attention.

As the female advances in age, her habits of exer-

cise often vary according to outward circumstances,—wealth, poverty, education, fashion. How widely different is the exercise of our female population, the unmarried in particular, from what it was during the first century of the settlement of this western world! Our pilgrim mothers, and their immediate female descendants, acted no inferior part in subduing the then wilderness, and in changing it into orchards and gardens, and planting with their own hands the young trees and twigs that now constitute our stately, rugged, yet beautiful elms, that so much adorn our front yards and road sides, and afford so much delight during the summer's heat; ay, and who, from the raw material, green in the field, and from the fleecy race, manufactured the firm and substantial fabrics that so effectually protected from "summer's heat and winter's cold" the lords of creation, as well as themselves, and their mutual pledges of love and future hope? Their necessities wrought out for them constitutions almost invulnerable, and insusceptible of tuberculous disease; and if there is any truth in tradition, pulmonary consumption was a very rare disease among them. I have been informed by some aged people, that, when they were young, "a person sick with the consumption" was an object of much curiosity, insomuch that it was not uncommon for people to travel forty or fifty miles, to see a subject of it. A writer in the Medical and Agricultural Register, printed in Boston, in Sept., 1806, in answer to this question, "Whence is it that consumption is so much more prevalent in both sexes now, than in the days of our forefathers?" says, "that

this *is fact*, I presume will not be denied. Consumptions are not only more frequent, according to the testimony of aged people, but also much more rapid in their progress than they were in their early days." He then makes the inquiry, "Must this be charged to change in our climate? or mode of living and dress? or to some other cause or causes?" Again he says: "If we attend to the mode of living, we shall find a far greater change between that of our hardy ancestors and the present generation, than was ever known in any climate in ten centuries. The mode of living and dress is now as different from what it was in the days of our grandfathers, as simplicity and luxury."

The above quotations apply more particularly, or, in fact, wholly, to eating, drinking and dress, and to both sexes. How changed the exercise, now, when the inventions of men, aided by the laws of the mechanical forces, have driven from the domestic fireside the wheel, the distaff and the loom, while fashion has substituted for them the toilet, the mirror and the piano. Not that I complain of or decry neatness and good taste in dress, or musical skill, as a female accomplishment,—but of the devotion of *too much* time, to the neglect of higher and superior duties; exalting the ornamental far above its proper place, to the injury of health, above the substantial and indispensable practical knowledge in the management of domestic affairs, so necessary to health and fire-side enjoyment. May we not fairly infer, from the changes in the habits of exercise of females, one plausible cause of their constitutional deterioration and present

effeminacy, so favorable to the production of tuberculous disease?

Notwithstanding almost every kind of clothing is now made principally by the use of machinery, with the assistance, comparatively, of but a very few females (who, so far as my own observation goes, seem to enjoy an immunity from consumption over the sedentary and inactive), yet there is no want of opportunity for every female in our Commonwealth to enjoy (if she will) suitable, useful and sufficient exercise. What physician, of any considerable experience in country practice, does not know something of the waste and loss, to say nothing of the unpalatable, indigestible, sour or hepatized bread, the "staff of life," with crude and half-cooked vegetables, with burnt or half-cooked meat, immersed two inches deep in melted animal fat, with eggs fried or boiled to petrifaction,—as well as the domestic unhappiness, and sometimes utter family ruin, directly occasioned by the unpardonable ignorance of females, in the prudent and skilful management of domestic concerns. The acute diseases, and morbid habits of body, produced in children and adults, by living on such crude, unpalatable, unwholesome and indigestible food, made so by unskilful hands, are charged in the account to family misfortune by the overruling hand of Providence, which should excite the tenderest human sympathy. How many industrious and hard-laboring young men have been disheartened, and have had their spirits sunk in silence within them, by the irretrievable misfortune of joining hands with a female

of idle, gossiping habits, educated to grace the ball-room, ride for her health, and thump the keys of her piano, but wholly ignorant of the practical details of good and prudent housewifery, and of the management of children, should the solemn dispensation of issue (too common, alas!) be superadded to his bitter cup of wo. Sedentary or idle habits wholly disqualify the physical system for active and laborious endurance, until gradually inured to it; hence it is that we so often hear from the lips of sedentary or idle females, "*I can't stand it to do house-work.*"

Nor is this all. The degradation of character attached to domestic service, and the hard hands, so made by a diligent use of the kitchen utensils, are abhorrent to the feelings of the falsely refined; hence, the health and strength communicated to the living solids by practical house-work can never be fully realized, while such unworthy notions are entertained. Tender mothers, through ignorance of the physical laws, and the wants of their already, perhaps, half-ruined daughters, by a mistaken and misplaced indulgence on account of supposed delicacy or weakness of constitution, suffer them to pass year after year, without taking the necessary exercise to prevent and ward off the very disease they so fearfully apprehend, and thus they hasten to an early tomb the idols of their hearts, by the very course adopted to secure to them health and long life.

Here the faithful physician may do much, by his knowledge and influence, by imparting better notions, and by enjoining a practical observance of the laws of

health. Let truth and duty here guide us, unawed by popular prejudice or the fear of pecuniary loss. The best good of our whole community requires plain dealing, to change the false maxims and erroneous ideas of physical training and proper living, wherever they may be found, into the true and fixed principles so clearly established by the Author of nature.

Healthy, honorable, indispensable, should be stamped upon all the domestic duties, by the sanctions of the highest female influence and of general popular acclamation. Then, none would presume or even dare to disregard their claims; and ignorance of the principles and even of the minute practical details of housewifery should and would cause the capillaries of the face to redden with shame. I have spoken thus strongly in favor of a practical knowledge of housework, because it is not only the appropriate business of the female, but on account of its prophylactic power; and because it is an indispensable requisite, as a female accomplishment, if she would enjoy health and cheerfulness, contentment and pure happiness, in herself, and be the organ of communication of these heavenly blessings to her husband and her family. Yet how few, compared with the whole of our female population, more especially between the ages of fifteen and thirty (the very period in which more die of consumption than at any prior or ulterior time of life), are willing cheerfully to take upon themselves the care and exercise necessary to preserve or restore health, and more fully develop physical strength, and to obtain a thorough practical knowledge of domestic

economy, and thus qualify themselves for lovely and useful wives, healthy and good mothers, and so raise the average length of human existence, lessen materially the present number of hereditary dispositions to tuberculous disease, and take the most important step in restoring our race to their primeval strength and longevity.

The amount of exercise for good health is, I fear, generally estimated much too low. I repeat, that it must be daily used, from two to ten hours each day, according to the wants and circumstances of individual cases. To have its happiest influence, it should be so varied as to call into action alternately the greatest number of muscles, and should be of such a character, if possible, as to interest the mind, and produce cheerfulness and contentment, or it will be likely to fail of its object. Sedentary ladies should regard the kitchen utensils as their ministering angels; while the axe, the saw, the scythe, the rake, the spade and the hoe daily invite sedentary gentlemen to a participation in the health, strength and cheerfulness their use imparts. Any kind of exercise is better than none; but, as a general rule, for adults and all persons of reflection, useful exercise,—by which I mean some kind of business which has an object to be obtained, and which requires activity, forecast and attention to accomplish, and promises a reasonable reward,—is decidedly the most beneficial. We meet with cases, however, in which the business of the world or usefulness has no charms; and in such cases, excitement is found, perhaps, only in games and sports, riding in

parties, in excursions of pleasure, in swinging, sea voyages, and the like, all of which must be resorted to, as individual cases may seem to require, or insufficient exercise must still stand out in bold relief, as an effective cause of phthisis.

Insufficient Air.—We should never forget for a moment that we are breathing animals, and that a full, fresh and constant supply of pure atmospheric air is indispensable to health and even life. We all well know that an all-important change in the blood is effected by the agency of the common air. Whether the blood is oxygenated, decarbonized, or both, or neither of them, its color and properties are changed by the air, and this change is essential to life.

Whatever decomposes or vitiates the air in which we may happen to be, or lessens the quantity below the requirements of the system, is fraught with mischief, and may be justly ranked among the causes of phthisis. Hence, may we not fairly infer, that the average of life of cordwainers, clerks, students, machinists, tin-workers, and artizans generally, is reduced by insufficient air? By the returns of 273 cities and towns in this Commonwealth, made by the clerks of the several towns, of the marriages, births and deaths, in obedience to an Act passed by our Legislature, March 3d, 1843, and from which an approximation to the true average longevity of adults pursuing different occupations is attempted, we learn the startling fact, that the average difference of life between those I have named and the cultivators of the soil, is about

twenty years. Have insufficient pure air and insufficient exercise nothing to do as causes of this tremendous difference? The rarefaction of the air in heated rooms, the carbonic acid, incident to respiration, in small or close rooms, or when the number of occupants is too great for the size of the room, the dust, and the many other ways by which the air we breathe is vitiated, are fruitful sources of constitutional deterioration, or pulmonary lesions, favorable to the production of true phthisis.

Although these returns are very imperfect, yet in the attempt I have named, the calculation there made probably approximated pretty closely the truth. These classes of men need light upon this subject; and whose duty is it to impart it? Surely the physician's. When the subject is once understood, and its importance duly appreciated, ways and means will be soon found out, to remedy these evils. But little ingenuity is required to contrive better, if not the best, methods of ventilating work-shops and studies, so that a sufficient quantity of pure, fresh air will be supplied to their occupants. The subject should be so presented to their minds, if possible, as to make them feel its importance, and the remedy will be certain to follow.

Insufficient air is allowed the lungs, by unwise fashions in dress, too generally adopted by females. Mothers sometimes commence the mechanical compression of the chests of their female offspring in their very infancy. But if this tender age is suffered to go free, youth seldom, if ever, escapes the iron grasp of

the tight waist or stays. These are applied with more or less force, according to the necessity of the case, to shape the *being* into the *beau ideal* of fashion's fancy, even should it require the lower part of the chest to be contracted to one half of its natural dimensions. The lungs, thus compressed, are denied their natural expansion, and, of course, the necessary quantity of air for the perfect performance of their highly important functions. The sternum and ribs, subjected to the mechanical power of boards and whalebone, made fast with cords that might have defied the strength of the giant of Israel, unshorn of his locks, cannot be moved by the soft and yielding net-work of the lungs, and, thus encased, the whole weight of the atmosphere is insufficient fully to expand the air cells of the inferior lobes; consequently, a portion of the lungs is doomed to perform the work of the whole, respiration is shortened and quickened, and, while their superior portions are probably injured by over-action, the lower waste for the want of the exercise designed them by the God of nature. Nor is this all. The blood, which should here meet the air, and, by a wise and beautiful process, be arterialized, is but partially purified and fitted for the high purpose of life, by this limited action of the lungs; and thus this vital fluid, loaded with impurities, perhaps, is destined to perform its accustomed round of circulation, imparting, it may be, to the various secreting organs the sedative of disease and death, instead of the proper stimulus of health and life. This foolish if not wicked custom is often adopted so early,

that the muscles and bones become reconciled, to a considerable extent, to its mischievous pressure, so that, before the child arrives to years of discretion and reflection, habit has established a seeming although a deceitful necessity for its continuance, and thus its evils are disbelieved, and its often sad results perpetuated. The sternum depressed, the ribs protruded forward, if not dislocated at their cartilaginous junctions, the natural cavity of the chest diminished, the shoulder blades thrown from their proper positions, the spine crooked, the lungs tuberculated, are probably among the bitter consequences of lacing. Nor is this all. Compressed and bound down, the passive stomach must severely suffer in the performance of its appropriate function; digestion, unable, by its too close confinement, to give to its heterogeneous contents the necessary undulating or churning motion, so essential in blending them thoroughly with the gastric juice. Should not this unwise fashion, when reason and argument are insufficient, be held up to supreme contempt, till its folly is abandoned?

PHENOMENA OF PHTHISIS.

The premonitory symptoms are,—slight, chilly sensations, or a kind of instinctive shrinking from every current of cool air; the color of the face frequently changing, in a very peculiar manner, better imagined than described; a general dryness of the skin; a diminished appetite, or satisfaction of appetite by a considerable less quantity of food; slight, transient

heat in the afternoon or evening, with a burning sensation in the palms of the hands and soles of the feet; the pulse more or less accelerated, the twenty-four hours round, whether asleep or awake,—generally increased in force, frequency and fulness after eating a considerable meal, especially if meat compose a considerable part of it; often a dry, hacking cough, or a disposition to cough; sometimes a sense of tightness or stricture across the upper portion of the chest; respiration always more or less hurried by even moderate exertion; frequently some hoarseness or change in the voice, in the afternoon and evening; a diminution of physical power, but sometimes an increase of mental perception, clearness and energy. These are the common symptoms which characterize the first stage of consumption, more or less of which are usually present, and apparent, in every genuine case.

In this stage of consumption, but little information worthy of confidence can be obtained, by direct exploration of the chest. I would by no means undervalue percussion and auscultation, as of high importance, and generally to be relied on in settling once difficult questions in relation to the diseases of the respiratory organs and the heart; and I mean to be understood, by the above remark, that the peculiar sounds described by the able writers upon direct exploration, are not generally cognizable sufficiently early, in incipient phthisis, to be unequivocally available in determining the question of tubercles in the lungs, by physicians of only ordinary opportunities and experience, like myself. In this opinion I am

sustained by Dr. Hall, who says, "the physical signs in the most early stage of tubercular formation are inappreciable." When I have not been able, by percussion or auscultation, to perceive any certain sound, indicative of any disease of the lungs, the resonance and respiratory murmur in every part of the chest, so far as I could detect, being perfectly natural, I have been led to suspect, by the pulse, and the presence of some of the other symptoms I have named, and by the history of the patient's ancestry, that tuberculous formations had already commenced; and the sequel of the case has too often verified my suspicions.

The second stage is marked by distinct physical signs of tubercular formations and extensions; an increased frequency of the pulse; often a hard, distressing cough, with expectoration of mucus, sometimes tinged with blood, and often mixed with small quantities of pus; daily hectic paroxysms; respiration more hurried, and bronchial at the upper part of the chest; percussion over the affected part decidedly dull; the crackling sound, mentioned by writers, may often be heard, when the ear is placed in the right position, after a fit of coughing, indicating the commencement of tuberculous softening, or ulceration, more generally cognizable at the top of the lungs; bronchophony, and the peculiar thrill, not only distinctly audible, but communicating a trembling sensation to the hand, when laid immediately over the affected part, when the patient speaks; the mucous and subcrepitous râles are, occasionally, perceived in

different parts of the chest, which, with other physical symptoms, too familiarly known to need repetition, tell the morbid actions and structural changes in the lungs, too plainly to be mistaken, and remind us that our best efforts to give relief, arrest the progress of diseased action, and restore to health the injured organs, will probably be unavailing.

The third and last stage may be known by the hurried and difficult respiration; the great frequency of the pulse; the expectoration of mucus, pus, and cheesy or curdy matter; the cavities that are plainly cognizable in various parts of the lungs; the tuberculous infiltrations and extensions, so obvious as to leave no longer any doubt in the mind, that the disease has now proceeded far beyond the reach of any known remedy, except by way of palliation; while the peculiar fetor of the breath, the fiery redness of the tongue, the aphtha in the mouth, the glassy eye, the high shoulders, the prominent cheek bones, the hectic, crimson flush, followed by a deathly pallidity, the dingy appearance of the hair, split at the ends, the blanched skin, the œdematous feet, the colliquative diarrhœa, the cold and partial sweat, announce the near approach of the king of terrors.

Such is the progress of consumption, when not arrested in its course; which sweeps off so many young men of high promise in usefulness, and still more of our beautiful, amiable and virtuous females, to an early grave. From one-fourth to one-eighth of all the deaths in Massachusetts are probably occasioned by this fell disease. Can nothing further be done, to stay its ravages?

I am aware, that by the statistics recently published by Dr. Hayward, in the New England Quarterly Journal of Medicine and Surgery, the ratio of deaths by consumption, to all other diseases and accidents, for thirty years, from 1811 to 1840, inclusive, has decreased in the cities of Boston, New York and Philadelphia. I rejoice that it is so, but doubt, very much, the decrease of consumption throughout our Commonwealth, or New England. Much has been done to diffuse among the inhabitants of these cities a correct knowledge of the physical laws, and enforce reasonable living, by popular lectures upon diet and physical education; and improvements have been, or ought to have been, made among all classes, by the removal of many of the causes of this formidable disease. But in the country towns, the opinion of physicians and others is, that the ratio of deaths by consumption, to all other diseases and accidents, is now, and has been for a series of years past, gradually increasing. Registration, in several towns in Worcester County, kept by physicians, clergymen and gravediggers, make the ratio from one-third to one-sixth; but these are not sufficiently exact or extensive to establish the fact; and Dr. Hayward admits that the registrations from which he made his tables are too inexact to warrant a certain conclusion, but only an approximation to the truth. The tables are made with care, and shed the best light we have on this important subject, and for which, I think, Dr. Hayward is entitled to the thanks of the faculty. It is to be hoped, as the subject is now before the communi-

ty, that its importance will be duly appreciated, and that some future friend of the medical profession and of man will have more extensive and exact data, from which to ascertain and fix the true ratio of deaths by consumption, of males and females, to all other diseases, not only in our cities, but throughout each State of the Union.

SPECIFIC NATURE OF PHTHISIS.

I am aware that the faculty is divided in opinion upon this topic of my discourse, and it is not surprising that it is so. The subject is replete with difficulties as well as interest. The pathological anatomy of the lungs, from the commencement to the close, in consumption, will probably never be exactly known. We cannot open the chest, like a book, and read from its vital page. Much, of necessity, must be left to inference. Deductions are sometimes made to sustain pre-conceived opinions, or some favorite theory, and may not always be legitimate; and the facts themselves have all the different colors of the rainbow, when viewed through seven different pairs of eyes. Personal idiosyncrasies and education should always be taken into the account, in our estimate of the value of recorded facts, and the deductions therefrom. One quite learned man may see truly wonderful things wrought out by animal magnetism, while another, equally wise and learned, can discover nothing in it to astonish. Physicians have no established medical creed, and each claims for himself the right to observe

and think. This broad-cast liberty must of necessity produce variety of opinion, especially upon abstruse and unsettled questions, among which is the specific nature or essence of tubercle; and this state of things is probably the most favorable for the discovery of the truth. If we admit that the specific nature of tuberculous phthisis is not only unknown, but may be inscrutable, it only places it on the same ground with that of many other diseases, whose fatal tendencies are generally successfully obviated.

When we say a disorder is inflammation, what do we mean by it? Nothing more than that the malady has the characteristics which have been duly recognized by that name. When we begin to speculate upon its nature, and the vital actions every way concerned in producing it, we are as much in the dark as we are concerning the essence of tubercle. We can observe its intensity, and lessen its violence by a prompt and diligent use of the means which experience and the general principles of medical science have established, by which we can often, nay, generally, conduct it to a safe resolution; and this is the most important, because it is the most useful, knowledge we can possess in relation to it.

We hear much, and, indeed, feel much, of the uncertainty of the *healing art.* But is the science of medicine, or the *healing art,* based on more uncertain principles than other sciences? How deep is our knowledge of the natural sciences? We can observe something of what is done by what are called the laws of nature; but *how* it is done, who can tell? We

can say the same of healthy vital action and of morbid action. Said the immortal poet, in answer to the question, "What is it to be wise?"

> "It is to know how little can be known,—
> To see all others' faults, and feel our own."

So consumption is well known by its bitter fruits, if not by its specific nature; and by its effects we may follow it back to many of its causes. We can observe its phenomena and pathological ruins after death, from which we *may* infer something of its essence.

By an investigation and knowledge of its causes we may do much by way of prevention; and, by a thorough acquaintance with its phenomena and lesions, we may perhaps do something by way of remedy. By a strict attention to the rational and physical signs of phthisis, and by many inspections of the lungs of those who have died of it, I am satisfied of its inflammatory nature, sometimes more, sometimes less acute. That the inflammation attendant upon the formation, extension and softening of tubercles, is different from adhesive inflammation, to me, is quite evident. That it is analagous to ulcerative and suppurative inflammation (if the terms are allowable), to me, is almost certain. That it has its commencement in the true capillaries of the lungs, I think, admits of very little doubt. That there is a partial or total loss of vital action in the absorbents and minute veins of the lungs; and an increased action in the minute arteries, to my mind, is highly probable. That a certain condition, state or habit of the general system,

produced by hereditary, or other causes, precedes this peculiar, specific inflammation, ulceration and suppuration of the lungs, I have not the slightest doubt. Here I must pause, as the limits of a single discourse will not allow me to pursue the subject farther into the region of speculation, nor would it be of any practical utility, perhaps, if I should state at length, the reasons for the opinions I have now advanced. I am aware there is but little or nothing new in them; but their practical bearing, if true, is highly important.

MEANS OF PREVENTION.

I have considered somewhat in detail, what I believe to be some of the ordinary causes of phthisis, in our immediate community; and, if true, it will be best prevented by avoiding all of them, so far, as it may be practicable to do it. Persons predisposed to consumption, or having the peculiar forms or temperament favorable to be acted upon by the remote and exciting causes of it, should make it their first and principal study to understand, as far as they may be able, the physical laws, the influences that the external world has upon their own constitution, and the proper adaptation of those influences to their personal wants, and, when these natural laws and influences are understood, they should be scrupulously respected. Our young men and boys should be directed in their selection of an avocation, as the business of life, with care,—and our children and youth, of both sexes, should be physically trained, with direct reference to their constitutional

tendencies. It is a great mistake in parents and others, having the care of children and youth, to deny them habits of industry, and even exposure to many of the hardships and rough influences of the world around them;—not recklessly, or without suitable preparation successfully to meet and resist their otherwise, perhaps, unhappy consequences, because they are delicate and weakly. These are the constitutions, of all others, that most need daily active employment and healthy excitement. All mankind are benefited by constant employment and labor, but the sickly and weakly cannot live without them. I do not mean sudden or violent action, but constant, steady, active employment in which the body and mind perfectly harmonize. It is as essential to the female as to the male. I have witnessed instances in which females of a delicate organization, having no disease (unless the debility and languid state of the system consequent upon inaction can be called disease), were absolutely and imperatively denied any participation in the light and active duties of domestic affairs, or to join in any active amusement, through the mistaken notions of tender mothers, lest they should get fatigued and "overdone." Too often are the wan or slightly yellowed countenance, the faltering step, and feeble powers of injuriously indulged children and pets, attributed to "overdoing," when, in fact, irregular habits of living, and want of suitable exercise, are the true causes of their unhealthy and sad condition. Employment, active, constant, agreeable and useful, is the true panacea for invalids.

The diet of the delicate and predisposed to consumption, should be simple, nutritious, and easy of digestion; a large proportion of it should be light, good bread, with milk, always taken with exact regularity as to time; eating slowly and masticating thoroughly, before it is allowed to pass into the stomach, always adapting the quantity to the amount of exercise performed. Activity and rest nicely balanced; labor and food proportionally regulated; clothing and temperature rightly adjusted; a full supply of pure, fresh air; cheerful and exhilarating light; and contentment of mind, are among the best means of invigorating a weak and lax constitution, and of removing that sort of cachexia so favorable to the formation of tubercle, and thus of warding off consumption, and of staying its ravages. Sponging the whole surface of the body and the extremities with water, occasionally made more stimulant and tonic, by the addition of common salt, at a temperature suited to the season of the year, and the feelings of the individual, followed immediately by active friction with a dry, coarse cloth or brush, every night and morning; wearing flannel next the skin, during the changeable and inclement seasons of the year, have proved highly serviceable to persons of strong hereditary tuberculous tendencies, and, in conjunction with the means already named, have prolonged many valuable lives, to a ripe old age. Some medical writers lay much stress upon the wearing of flannel next the skin, by persons of consumptive tendencies (and very justly, too, if my own experience can add any thing to the weight of their testimony),

on account of the reciprocal consent between the capillary system of the skin and that of the lungs. That a strong sympathy and reciprocity of action do exist between the capillaries of the skin, and those of the lungs, I think no physician will be disposed to deny. Does not this fact make in favor of the suggestion of the loss of vital action, and the commencement of tubercular formation in the capillaries of the lungs? Dr. Barlow, of Bath, England, has given the true reasons for wearing flannel next the skin, and the proper way of wearing it, to be the most serviceable to persons generally, as well as invalids and those more particularly predisposed to consumption. He recommends to lay aside the flannel at bed time, and substitute therefor, a cotton night-dress. He says:—"The chief advantage resulting from a flannel dress next the skin is not the actual warmth imparted or retained, an effect that might be obtained to an equal extent, by an increase of outward clothing,—but from the uniformity of temperature thus insured to so large a portion of the surface of the body, and the tendency which this has to keep the highly important, but too much neglected functions of the skin in an active and healthy condition. During the day, the frequent and oftentimes sudden vicissitudes of our climate are such as to render the effects of flannel, in preserving an equality of temperature, most valuable. But at night and during sleep, we are subject to no such vicissitudes, consequently, no such necessity for the use of it does then exist. But while the use of flannel at night appears to be unnecessary, there are several

considerations which show it to be injurious. These considerations regard both the condition of the body and the flannel itself. Whatever the wants of the body during the night, for warmth, may be, they are generally fully supplied by the bed-clothes in ordinary use. The body requires no extraordinary warmth during sleep, but on the contrary, there is at such times even a tendency to an increase of the natural warmth. When to this natural tendency, the heat caused by flannel worn next the skin is superadded, the effect is to keep the skin in a state of considerable excitement, and to induce perspiration, more or less profuse. These effects are not calculated to prepare the body for enduring the vicissitudes of the ensuing day; but rather to render it more susceptible of injury. The property which renders woollen cloth so eminently suited to the purposes in view, is that of its being a slow conductor of heat. A flannel dress that is worn next the skin throughout the night, becomes so charged with perspiration, that its power of conducting heat is thereby greatly increased, and its preservative effects proportionally diminished. A two-fold injury results, then, from the practice of continuing the flannel dress during sleep, viz., a diminution of the preservative powers of the flannel, and an increased susceptibility of the skin. By laying aside the flannel on going to bed, and substituting for it a cotton night-dress, the body is kept in that temperature during the night, which fits it for encountering the vicissitudes of the ensuing day; while the flannel itself is preserved from the deteriorating influences of the

nightly perspiration, and it will be resumed in the morning in a dry and clean state, which contributes both to comfort and protection."

I would here remark, that taking off the flannel at night, after the labors and fatigues of the day, and putting on a cotton night-dress without warming it, makes an impression upon the skin, followed by an agreeable glow, worth all the trouble of the exchange. The plan is worthy of attention, by all who practise wearing flannel next the skin, during the inclement seasons, and will much more effectually protect the system from colds, than when it is worn during the night as well as the day, as I believe it generally is by most persons. It may, perhaps, be thought trivial and too much trouble; but those who may so think, I would ask, What is the value of life without a comfortable degree of health? Is any trouble or sacrifice too great to restore it, when wanting, or preserve it, when enjoyed?

The feet of the consumptive should be protected with particular care. The warm and fleecy hose, with good substantial boots or shoes, should never be despised so long as they keep the feet dry and warm. The soles of the feet closely sympathize with the mucous membrane of the nose, throat and lungs. The feet, therefore, should never be suffered to remain cold or damp for a moment of time, when it is possible to prevent it. They are much inclined to be uncomfortably cold, which can often be remedied or much improved by sudden immersions in cold water, for a few seconds at a time, immediately

followed by active friction with a warm, coarse cloth, and when these means prove insufficient to restore the circulation in the minute blood-vessels, and consequently warmth, common salt may be added to the bath, or a cloth may be used for the friction that has been dipped in salt-water and dried.

I have now mentioned some of the means of lessening the ratio of deaths by consumption, to which, as I am fully persuaded, the old adage,—"an ounce of preventive is worth a pound of remedy,"—is eminently pertinent.

TREATMENT.

With regard to the best method of treating consumption, my own experience is, that if any success is to be reasonably expected, it must be treated on general principles, according to the rational and physical symptoms present when we are called upon to prescribe, having regard to the constitutional and outward circumstances of the patient. No disease, as it seems to me, to which man is liable, requires a closer investigation or a nicer discrimination in forming an opinion of the course of treatment to be adopted, than the first stage of phthisis, under its ordinary insidious development. When the case is understood, and the course to be pursued is decided upon, watchfulness on the part of the physician is absolutely indispensable to ascertain the effects of his remedies, and if the object aimed at has been obtained or approximated. If nothing has been gained, he should

institute a more searching inquiry into all the minutiæ of the case, carefully review the symptoms, and ascertain, if possible, the cause of failure. Some internal obstacle, or outward influence, may, perhaps, have been overlooked, which is keeping up and aggravating the excitement, and must first be dislodged or removed, to insure success. The nurse is to be watched as well as the patient, to know that our remedies have been properly and faithfully administered and applied, or whether our directions have been only half complied with, or wholly neglected, and our medicines laid aside, and some patent specific substituted for it, or given at the same time. Constant vigilance is absolutely necessary, as all sorts of notions now prevail, relative to the treatment of diseases, as well as to law and morals, among nurses, and consequential, meddlesome advisers, whose moral sense is in no way shocked, or even ruffled, by taking upon themselves the awful responsibility in which the life of a fellow-being is involved. How often has the unsuspecting and conscientious physician lost his confidence in his plan of treatment, or in his own judgment, through the infidelity or incapacity of nurses, in its exact execution! "*I take the responsibility*," is now too fashionable for the safety and best good of the *constitutions* of patients, as well as for the safety of the constitution, laws and institutions of our *body politic*. Arbitrary experiments are fraught with too much uncertainty and danger, to be hastily adopted by *medical executives*, although their effects may be secretly deposited, with the *relics*, in the tomb.

Specifics for consumption, too, are out of the question. The complicated nature of the disease ridicules the very idea. None of the hobbies of the present or the past should be relied upon for a single day, while there is any reasonable prospect of a radical cure. This disease must be met as it is; and vanquished, if possible, in the shortest practicable time. It is often necessary to make a decided impression upon the system at once, to break out a link in the chain of diseased action.

The best method of doing this must, necessarily, be left to the discretion, skill and judgment of him who may be called upon to prescribe the course to be pursued, after a close, personal inspection, and a full and careful investigation of all the symptoms and external circumstances of his patient,—and after weighing the case in "reason's comparing balance." Effective means are not wanting, when the principle of action is once established. The lancet, the leech, the cupping-glass, the Spanish fly, Croton oil, tartarized antimony, ipecacuanha and mercury, are instruments of power and of great utility, when skilfully used. Much, however, depends on the time and the manner of their use. Acuteness in discrimination, and exactness in perception, will rightly adapt them to the object to be obtained.

It would be difficult, perhaps impossible, to point out in detail the best means suited to the removal or mitigation of all the various symptoms and bad feelings incident to this disease; yet their incidental attendants should not be overlooked, or treated with entire

neglect, especially when the real disease is unhappily influenced by them. But the eye must be steadily kept upon the disease itself, and the attention fixed upon the progress it is making, rather than on its incidentals; and that physician who enters the field of action, armed only with a set of recipes, supposed to be suited to all the various symptoms, will find himself but poorly prepared ("if he have never read and reasoned") to contend the ground, inch by inch, with death's *prime minister*. He must have other resources about him, or his enemy will elude his grasp. A thorough knowledge of the principles of medical science; clear, common sense; a sound and discriminating judgment; a minute and exact knowledge of the powers, actions, functions and sympathies of the animated body, while in a state of perfect health; the ordinary influences of mind over and upon the functions of life; its exceptions, and extraordinary influences in certain morbid physical conditions; in a word, an exact acquaintance with all the minutiæ of physical and mental philosophy,—their nice connection and reciprocal influences, as far as can be learned, are among, and a part of, the necessary medical furniture for successful practice.

I am sure that consumption, during its first stage, has been suspended, yes, cured, and can again be, as often as many other grave and formidable diseases, with which we so often successfully contend. Under early proper treatment, it will often yield in a short time; but too often, alas, it exhibits an obstinacy which calls for firmness, patience and perseverance

to successfully overcome it. I do not mean to say that every case, even if put under proper treatment in due season, is curable. I believe no such thing; but only that not every case is incurable, and necessarily fatal. Much can be done with medicines, if done at the right time, and in the right way. The lancet may be altogether ineffectual, and even prejudicial, in cases, *even* in which its use is absolutely indispensable, if we govern its use by the number of ounces of blood abstracted, instead of the impression made upon the patient. No rule, therefore, should ever be prescribed for the abstraction of blood, by weight or measure. Some patients tolerate its loss to an extent almost incredible, before the right effect is produced, to wit, an essential change in the pulse, the skin and the face, and sometimes complete syncope. The effects produced by the administration of tartarized antimony, in nauseating doses, and of emetics, should be the governing rule. Not that I am the advocate of rashness or recklessness in the use of powerful remedies, in this or any other disease,—but of acute discrimination in settling the principle of action, and of firmness of purpose that dares to do right, under a watchful care of the *modus operandi* of what is done,—and of always stopping in the right time and at the right place.

I would repeat, that the remedial agents to be relied on are venesection, having strict regard to the effects produced, instead of the quantity of blood abstracted; leeching; cupping; blistering and irritating the surface of the chest with tartar emetic ointment, Croton oil and sinapisms, while the pulse and other circumstan-

ces of the patient will tolerate them; at the same time we should call to our aid, when the disease is obstinate, tartarized antimony, and give it in sufficient doses, in solution in water, to keep up more or less nausea for hours, or even days, as the case may require; giving a gentle emetic, every evening, of ipecacuanha, when no peculiarity of the patient contradicts its use,—to be continued for a longer or shorter period of time, according to the effects produced, or the necessities of the case; keeping the skin in a soft and moderately moist state; confining the patient to a moderately warm but large and airy room; enjoining rest, while there is any considerable febrile action, and even confinement to the bed may sometimes be requisite, till the force and frequency of the pulse are essentially moderated. Abstinence from all solid food, for a while, may be requisite, but cooling and demulcent drinks should be freely taken, and some liquid nourishment may be allowed. Mild mercurials, when the digestive and hepatic systems are deranged, will be serviceable, keeping the bowels open, when necessary, with gentle laxatives.

This plan of treatment is to be adopted, in whole or in part, pursued longer or shorter, modified or changed, according to the sudden or slow access, violence or mildness of the disease, and the constitutional circumstances of the patient, obviating incidental symptoms by their appropriate remedies, till the force of the disease is broken; when the confirmation of the cure may be left to a milk and vegetable diet, suitable exercise, a change of climate, expectorants, and fric-

tion upon the skin, or effected by a diligent use of the means recommended for the prevention of phthisis. The common expectorants are too well known to require enumeration; but I would here remark, that the *eupatorium perfoliatum* seems to me to be entitled to a higher rank in the catalogue of remedies, and especially as an useful adjuvant in lessening inflammatory action in the first, and as an expectorant in the second, stage of consumption. A strong infusion of the leaves and blossoms, timely gathered and carefully dried and preserved, taken in doses of from two to four ounces, every six or eight hours, generally slightly affects the stomach at first, promotes perspiration, and acts gently upon the bowels, without a reduction of the strength, promotes expectoration, and lessens the frequency of the pulse. By its use in my own case, while afflicted with bronchial inflammation last March, my pulse was twice reduced from eighty-four beats in a minute to sixty, sitting up in my chair during the time. This infusion may be made more palatable by the addition of refined sugar, or honey, to suit the taste. I have used it in this form, as I think, with considerable benefit, in pulmonary and bronchial disease. It is worthy of a more extensive trial.

The general views which I have now stated in relation to the treatment of the first stage of consumption, I do not pretend have even the charm of novelty to recommend them; still, I do believe them to be important, and that their fitness is too often lost sight of, in the desire to find something, which will probably never be discovered, to act specifically as an antidote

to this obstinate and, too often, intractable disease. I feel much confidence in this plan of treatment, under favorable opportunities for carrying it out, and firmly believe that it will prove successful in a majority of cases of incipient phthisis, if early adopted and skilfully executed.

The faithful physician, however, will meet with obstacles and discouragements, in carrying forward to a successful issue so rigid a plan of treatment, which may require all the address he can command to overcome, and which, too often, he may expect will be insufficient to retain his patient's confidence and submission, while a certain cure is unconditionally and very dogmatically promised on much easier and more agreeable terms, by ignorant and self-complacent empirics and patentees. However well some men may think and reason on subjects generally, they often seem to lose their reason and common sense in relation to the treatment of disease. On this subject the mysterious and marvellous, aided perhaps by the honest but fatally mischievous interference and advice of meddlesome neighbors, successfully addresses their infirmities, and overpowers their better judgment. They could not be so cajoled and befooled on any other subject. How often, indeed, do we see consumptive patients, as well as dyspeptics, fly from one physician to another, and from the latter to the ignorant quack, incapable of reading or reasoning, for the cure of this complicated and grave disease! Why is it thus? Is it because

"The pleasure is as great
Of being cheated as to cheat?"

What would these otherwise sensible men say of the pretending mechanic, without even a knowledge of the laws of motion, and who had never seen the inside of a watch, but who, nevertheless, should offer to repair and regulate its delicate machinery by a wise look and a random shake? They would at once pronounce him a vile impostor, unworthy of patronage or notice. And can they not see any similarity between this mechanic and that renowned son of Apollo, who, with the same look of wisdom, prescribes pills and bitters or syrups in every stage of this, and for all other diseases, always composed of the same materials? Alas! for boasted human reason! Who that knows that man must die—who that knows the uncertainty of the healing art, as well as all things earthly—would not be surprised, yes, astounded, to read the encomiums so lavishly bestowed upon a host of patent or secret medicines, from the *never-failing* "*botanical cough-drops*," to the "*resurrection pills*," as safe and infallible remedies for consumption, in any stage of it, as well as for all other diseases, as dissimilar in their character as light and darkness, or as knowledge and ignorance, or honesty and dishonesty, yet published to the world for truth, accompanied with certificates, manufactured for the market, of their wonderful virtues and miraculous cures? What is the effect on common minds of such bold and positive assurance, and such transcendent recommendations? I answer, that many (I might almost have said all) do and will try them, and that, too, perhaps, in the only stage which affords any

reasonable chance of a radical cure, and which, when once wasted, can never be redeemed. Indeed, this obstacle in the way of success so often meets us at the door, that our energies are paralyzed. I here assert, that I have never seen a single case of consumption permanently relieved by any of these secret medicines. Those having any influence, except as a placebo to the mind, generally contain some opiate preparation, which often soothes some of the more noticeable symptoms,—as the cough, for example,—but which return upon the deluded sufferer, with a force proportionate to the suspension, in a short period of time. The hope inspired by this deceitful mitigation, furnishes to the limited comprehension of the patient and his friends a reason for further trial of these medicines; and thus this treacherous disease, and these still more perfidious remedies, are making the victory sure.

These deceivers (and I know not but they deceive themselves as well as others) well know the common prejudices against all medicines, not selected from the vegetable kingdom. They are careful, of course, to use the qualifying word, "vegetable," written in huge capitals, often and generally before the bombastic name of their potent cure-all, when, at the same time, it is well known to you, that many, and probably most of these patent compounds, having any physical effects, contain some of the very Samsons of the mineral kingdom, combined with some form of opium. Then it is, strange as it may seem, that opium, mercury, antimony and arsenic, against which there is

such a general prejudice in the community, excited and kept up by these *vegetable standards of moral purity*, under the cloak of secrecy, and the essence of checkerberry, are swallowed with avidity. Surely opium has a vegetable origin, and so have many other deadly poisons that may be beneficially effective in skilful and careful hands, in the treatment of diseases; but the deception is none the less on that account. But is the daily use of opium always safe and harmless, in every stage of consumption? This is not in accordance with the best modern medical opinion. The stimulating property of opium must be prejudicial in its influence upon an already too much excited and an inflamed system, and my experience induces me to believe its daily use, in the first stage of consumption, quite as objectionable as a moderate daily use of spiritous liquor or wine. I have never known a successful termination of genuine phthisis, where this drug has been admitted into its early daily treatment. Certain symptoms or incidental occurrences may call for a single moderate dose of some opiate preparation, but when the object is obtained, for which it may have been proper to administer it, I would recommend to dismiss it at once.

These secret medicines promise altogether too much. Their extravagant and bloated commendations make probability blush. This fact, alone, it would seem, should be sufficient to excite universal distrust, if not disgust. But it is not so, and I verily believe that thousands of valuable lives have been lost by the faith and confidence inspired by these fulsome

recommendations, in their safety and infallibility as remedial agents. If the patient waver, the gratuitous cant is, "it can't do any hurt to try it." This short argument is often conclusive, and the medicine is tried. Do these medical advisers realize the responsibility they take upon themselves? They are probably honest in their advice, having read in their newspaper that they are not only "safe," but "certain cures." Who is responsible for all this deception? Some good people seem to believe (and is it not creditable to their hearts?) all that is printed, and when these secret, deceitful, and oftentimes dangerous compounds are puffed off in the most fascinating terms which the ingenuity of man can employ to foster popular errors in their favor, and strengthen and heighten popular prejudice against what are vaguely termed "apothecary medicines," and all coolly set forth as sober truth, in the family newspaper; is it surprising that they try them? The heaviest sin in this business does not lie at the door of this class of people. There is another class of persons, for whom I can think of no apology, and who, as it would seem, can have but a single object in view, a single purpose to effect. Let us take our leave of this class of impostors, in the language of the good old patriarch; "O, my soul, come not thou into their secret; unto their assembly, mine honor, be not thou united."

The treatment of the second and third stages of consumption should be mild and soothing. Mucilages and gently exciting expectorants may be given to allay irritation, and to aid in throwing off the loose

secretions in the throat and bronchial tubes; sinapisms and emollient poultices; stimulating liniments or plasters; a dry hot cloth, which is often more grateful than any other external application, may be applied to the chest, to relieve local pain or distress. The temperature of the patient's apartments should be kept as even as possible, day and night, at the degree of warmth most agreeable to the patient; the air is to be kept pure and sweet, by gentle, constant circulation, with strict attention to cleanliness; the diet is to be adapted to the condition and habits of the patient; the bowels to be kept regularly open; and gentle exercise should be taken, daily, out or in doors, according to the state of the weather, so long as the patient can bear it. All medicines should be omitted when the patient is comfortable without them. Light exercise of the mind, upon subjects suited to the taste and habits of the patient, should be encouraged. Deception and quackery should not and cannot be resorted to, by the conscientious and scientific physician. If the patient or his friends are not satisfied with truth and reason, it is better to retire than wound the moral sense, or the dignity of professional science.

I am aware that some of the various forms of opium are almost universally resorted to, by physicians, to alleviate the sufferings of patients in the second and third stages of consumption. My experience is, that the daily administration of opium, in any of its preparations, even in the last stage of phthisis, is of doubtful utility as a palliative. Every dose seems to

create a necessity for another, which often increases in proportion to the time it is used, till its constant influence is deemed indispensable, by the patient, to make existence tolerable. Therefore, I would recommend to withhold opiate preparations, as long as possible, except occasional moderate doses, to check diarrhœa, with pain in the bowels, when it cannot be effected by the use of other remedies. I object to the daily use of opium, because it lessens or wholly destroys the appetite for simple food, increases the heat and febrile symptoms, and consequently facilitates and accelerates tuberculous ulceration in the lungs; and because it seems only to smooth the pillow of suffering at the expense of an accelerated waste of the sands of life,—of a clouded intellect,—and of an increased susceptibility of the system to pain and suffering when not under its deadening influence. It agrees with some constitutions better than with others, —but it flatters, only to deceive, and charms, only to destroy.

BIOGRAPHICAL NOTICES.

During the past medical year, this Society has been called upon to mourn the loss of an unusual number of its fellows. Twelve of our number have been summoned to that "country from whose bourne no traveller returns."

The aged and the venerable, the middle-aged and the young, have been called home to remind us of human destiny, and of the uncertain and feeble tenure by which life is held.

Daniel Oliver,	of Cambridge,	died	June	1,	1842,	aged	54.
Amos Holbrook,	Milton,	"	"	17,	"	"	89.
Rufus Wyman,	Roxbury,	"	"	22,	"	"	64.
Daniel Stone,	Sharon,	"	Aug.	27,	"	"	69.
Caleb H. Stickney,	Norwich,	"	Oct.	4,	"	"	55.
Benjamin Billings,	Mansfield,	"	"	9,	"	"	82.
Nathan Washburn,	Bridgewater,	"	Nov.		"		
Charles O. Baker,	Lynn,	"	Jan.	8,	1843,	"	40.
Josiah Howe,	Templeton,	"	"		"	"	72.
Charles T. Hildreth,	Boston,	"	March	8,	"	"	45.
Arad Thompson,	Middleboro',	"	April	14,	"	"	56.
Abijah Cheever,	Saugus,	"	"	21,	"	"	84.

Nathaniel Potter, M. D., of Baltimore, Md., an Honorary Member, died January 3, 1843.

DANIEL OLIVER, M. D.

In the death of Dr. Oliver, science mourns the loss of a worthy and indefatigable son. I could not, if I would, give the true character of this modest, amiable and truly devoted disciple of science. A more able pen is required to do justice to his merits. Although I have been instructed by his profound learning, and delighted by his clear and beautiful style of communication in the lecture room, his scientific history is far above my reach. His was a mind that never tired in the

research or contemplation of exact knowledge. It was his meat and drink to "to dig" for scientific truths, but I shall not attempt his eulogy. His fame as a scholar is too bright to receive additional lustre by my hand.

He discharged the duties of a lecturer and professor in the medical institution at Hanover, N. H., with distinguished ability and with entire satisfaction. He was elected an Honorary Member of the Massachusetts Medical Society in 1836, and was a member at the time of his decease.

AMOS HOLBROOK, M. D.

The venerable Dr. Holbrook has come to his grave, "in a full age, like as a shock of corn cometh in in his season." He was chiefly self-taught, having had but small or limited early opportunities to prepare himself for the study of medicine. By an untiring devotion to study, and by a rigid course of mental discipline, he raised himself to an honorable distinction at home and abroad. He spent almost seventy years of his long and useful life in removing and mitigating the sufferings of man. His was a heart of sympathy and of noble benevolence. Like the celebrated and beneficent Dr. Boerhaave, he considered the poor his best patients, "for God is their pay-master." Dr. Holbrook commenced his career of usefulness at a period of our country's history which "tried men's souls." He joined the continental army at Cambridge, in August, 1775, in the capacity of surgeon's mate, in the 22nd year of his age. He braved, with his companions, the displeasure of the British crown, and devoted the early part of his professional life to the alleviation of the miseries of war. Blessed with a good constitution, a sound mind and a feeling heart, he shrunk not from the duties of patriotism, but endured the fatigues of the camp, and the deprivations of war, while he was not unmindful of his own improvement in the art of healing and practical surgery.

In March, 1776, he was promoted to the office of surgeon, the duties of which he acceptably discharged for a year, when he was obliged, by ill health, to leave his post to regain his health. On his return from the army, he went immediately to Milton, with the view to establish himself there in the practice of physic. A severe attack of intermittent fever, the seeds of which had been sown during his campaign in New Jersey, induced him to try the effects of a sea-voyage the latter part of the summer of 1777; and for this purpose he obtained the situation of a surgeon in a letter of marque, in which he sailed for the coast of Europe, visited France, where, being detained several months, he availed himself of the opportunity of improving his knowledge in medical science, and of better qualifying himself for the discharge of its practical duties, by attending and seeing practice in the hospitals, and returned to Milton in a little less than a year, in good health.

Always alive to the best interests of mankind, Dr. H., soon after his return to Milton, succeeded in establishing temporary hospitals for the reception and treatment of patients inoculated with the small pox, and thus he became known to the people of the town and vicinity. His fine personal appearance, his good manners, his indefatigable attention to his patients, and his love of knowledge, soon obtained for him a respectable business, and the confidence of the people. Subsequently he took a very active part in promoting public vaccinations, and in 1808, he vaccinated, with his own hand, more than one fourth of the whole population of the town. By his benevolent exertions in this cause, and by his general reputation as a sound, practical man, he was deemed worthy of the honor of an election as foreign member of the Medical Society of London, and of the Literary and Philosophical Society of Preston, in England.

In 1813, he received the honorary degree of M. D., at Harvard University.

He has been many years a Counsellor in the Massachusetts Medical Society, and its Vice President. His whole life was filled up with usefulness and active benevolence, to its very close.

He died on the memorable 17th of June, sixty-seven years after the battle at Bunker Hill.

RUFUS WYMAN, M. D.

In the death of Dr. Wyman, this Society has lost a judicious and useful member,—the arts and sciences, an able and devoted friend,—the poor and unfortunate, a benefactor,—and society, a bright example of moral and Christian excellence. He was born at Woburn, July 16th, 1778. He received the rudiments of his education in the common school. His father died when he was but fourteen years of age,—but God wisely orders the events of his providence for the best good of his children, and provides fathers and friends to his orphans.

By the advice and assistance of a friend the destination of this youth was changed, and instead of being prepared for the counting-room, he was fitted for, and went through a course of collegiate study in Harvard University. After completing his collegiate course and receiving the honors of the university, he spent one year in teaching, principally in the town of Worcester.

In 1810, he commenced the study of medicine, under the direction of Dr. Brown, of Boston, and received clinical instruction at the alms-house in Leverett Street. His teacher was taken sick, and Dr. Wyman completed his studies under the tuition of Dr. John Jeffries. Dr. Jeffries became much attached to his pupil, and after he had received the degree of M. D., invited him to a connection in business with himself. Dr. W. resided in Boston about a year, but being troubled at times with a pulmonic difficulty, he thought it prudent to

seek a situation in the country. He selected Chelmsford, then including within its bounds what now constitutes Lowell, where he acquired the name, as he possessed the character, of the beloved physician. Accessible and single-hearted, he was often made the family adviser in the circle of his professional duties; and he ever proved himself worthy of the confidence reposed in him. In addition to his professional and other duties, he discharged those of a justice of the peace, and his decisions of contested questions were generally respected as both legal and just.

In 1817, he was appointed physician and superintendent of the McLean Asylum at Charlestown. The buildings for the reception and accommodation of the insane were then in progress, and it was highly important that the plans and internal arrangements should be well suited to the object to be obtained. Dr. Wyman felt this, and immediately visited all the hospitals of our country, to obtain information relative to the best construction, by which, and with his own inventive genius and knowledge of practical mechanics, he was enabled to render important aid to the architect who had the supervision of the work. He commenced his residence at the Asylum July, 1818, and the first boarder was admitted the following October. He was unremittingly devoted to the best interests of this institution during the whole 17 years he was its superintendent. He was absent from it but a single night during the first twelve years. In 1832, an additional building, larger than the former, was erected for the better accommodation of the male boarders, under the sole supervision of Dr. Wyman. All the architectural and working plans of this building were drawn by his own hand. Dr. Wyman's treatment of the insane was mild, but firm and steady. His success of course was good. In 1834 an assistant physician was appointed to the Asylum, and Dr. W. soon after resigned his office, and removed to Roxbury, with the

intention to lessen his cares, and recreate himself in agricultural employment, of which he was fond,—but his reputation as a physician and a skilful manager of the insane induced the friends of the sick and of the insane to solicit his advice to the former, and his supervision and care of the latter, with so much earnestness, that he found it impossible to deny them; so he continued to give advice in difficult and protracted cases of disease, and to receive into his house for treatment and cure, this unfortunate class of sufferers till within a few weeks of his death.

Dr. Wyman was a member of, and an officer in the American Academy of Arts and Sciences. He was an active fellow of the Massachusetts Medical Society for many years,—held the offices of Censor and Counsellor, and was its President the two years next preceding his death.

He delivered the annual discourse in 1830.—Subject, "Mental Philosophy as connected with Mental Disease." He felt and manifested a deep interest in the *temperance cause*, and was the President of the Norfolk Temperance Society at the time of his decease. He died in a remarkable quiet manner; so calm, that a glass of water which he held in his hand was removed unspilled after life was extinct. His whole life, of which this is but a very imperfect sketch, is an instructive lesson to us, and an honor to humanity.

He died of bronchial inflammation.

DR. JOSIAH HOWE.

Dr. Howe was born at Milton, Massachusetts, March 19, 1771. At the age of 14, he entered Phillips' Academy at Andover, and pursued his studies for five years. His pecuniary resources being quite limited, he opened a school in Templeton in this State, which he taught about one year.

In April, 1791, he commenced the study of medicine with the distinguished Dr. Benjamin Shattuck, of that town, with whom he continued until the death of his teacher and patron. Dr. H. obtained the friendship and confidence of his instructor, who by his will, committed to him the settlement of his estate; and by his good management he secured to himself yet a greater boon, his daughter's love and hand. Dr. H. commenced the practice of physic in Templeton immediately after the death of Dr. Shattuck, in 1794, whose justly earned fame was a powerful credential to Dr. Howe as an introduction into medical practice. By his prompt attention to every call, his good personal appearance and gentlemanly manners, in connection with the recommendation of his distinguished teacher, he was enabled to go immediately into a very good business; and, by his faithfulness and success, to increase and extend it.

Dr. H's constitution was never very firm, and the arduous duties of a physician amid a sparse population, to be discharged by night, as well as by day, at a distance, oftentimes, of many miles, unfavorably affected his health, and he relinquished the practice in 1820, having pursued it 26 years. He was a member of the Massachusetts Medical Society for many years. He held a commission as a justice of the peace, and represented the towns, Templeton and Westminster, in the General Court. He was much esteemed by his friends as a physician and a good citizen. He was a kind husband and an indulgent father.

For an account of his social virtues, I would refer to a sermon delivered by Rev. Charles Wellington, pastor of the first church in Templeton, January 29, 1843.

ARTICLE III.

THE CHARACTER AND QUALIFICATIONS OF THE GOOD PHYSICIAN.

BY JOHN HOMANS, M. D., M. M. S. S.

[Read at the Annual Meeting, May 29, 1844.]

GENTLEMEN,

I should not have accepted the honor of addressing you on this occasion, had I not felt that I might rely with confidence upon your candor and kindness. I am entirely unaccustomed to public speaking. My pen is unskilled in all arts of composition, save the composition of prescriptions (and perhaps has but little in that). I should despair, therefore, had I to rely solely on my own ability to discharge acceptably the duty which this day devolves upon me. I rely on the kind indulgence and friendly feeling which the Fellows of this Society cherish, and have ever been accustomed to manifest, towards each other.

I congratulate you on the return of another anniversary of the Massachusetts Medical Society,—on

the pleasant reminiscences that gather around this occasion,—on the cheering prospects it opens to us in the harmony that prevails among its members, in the high and advancing standard of medical character and attainments which this Society has done so much to establish in our profession, and in the growing interest manifested in all those branches of study and science, which come within the scope of that profession, and aid in the accomplishment of its important object —the alleviation of human suffering, through the wise and right treatment of human diseases.

The direct purpose of our Society is strictly professional; yet social and moral influences necessarily flow from our associating together even for this purpose. Scattered as we are over a large extent of country, most of us having little or no opportunity for professional sympathy or counsel, engaged day after day throughout the year, in the duties of a laborious profession,—duties always arduous, and sometimes overwhelmingly painful in the extent of individual, solitary, unshared responsibility they involve,—it is pleasant for us, once a year, to behold each other's faces, and, by the interchange of kind feelings and friendly salutations, to brighten, perpetuate and extend the chain of professional acquaintance, of personal friendship, and of high moral regard. And although the periods for this social intercourse are brief in their duration, and far between in their recurrence, yet they are not without their benefits and blessings. If they do not add much to our stores of wisdom and professional knowledge, they add largely to our stores of

pleasant memories and agreeable thoughts. If they sometimes do little directly to make us better physicians, they always do much to make us better men; and, by enlarging our conceptions of the important character and noble purposes of our profession, quicken us to greater fidelity and industry, and thus indirectly, in the end, help to make us better physicians. For myself, I feel impelled to say that, in addition to the benefits derived from the rich results of professional study and investigation, which have sometimes been communicated to us on these occasions, I have never been present at an annual meeting of our Society, from which I have not received something of more value, I had almost said, than all professional learning; namely, quickened impulses to fidelity in the exercise and discharge of this profession. I have never returned from one of these meetings to my individual sphere of professional labor, without carrying with me a feeling of pride,—not a foolish and vain-glorious pride, but a just and manly pride,—a pride in the noble and benevolent purpose of our profession,—a pride in the high character and attainments of my professional brethren, a pride in being associated with such a body of learned, honorable, and high-minded men, in the prosecution of such a noble and benevolent purpose. And this is not a pride that puffs up with ridiculous vanity, but which, appealing to all the higher sentiments of our nature, prompts a man to such a course of effort and perseverance, as shall render him not unworthy of his associates and his profession. This is a benefit, I believe, we all derive from these occasions.

Although not universally the case, it has been common for the person charged with the preparation of the Annual Discourse to select some strictly professional subject in the department of medicine or surgery, and unfold its particular character and best modes of treatment. It is, undoubtedly, well that this should be the character of most of our Annual Discourses. I am prompted, however, to ask your attention to a somewhat broader and more general theme. I propose to speak to you of the character and qualifications of the good physician. What ought he to be, morally and intellectually, in order to attain, if not to distinguished eminence and a wide-spread fame, at least to an honorable usefulness and an unsullied name, in his profession?

This inquiry will not, I trust, be deemed inappropriate to this occasion. In offering some brief hints upon it, I need dwell but for a moment upon the importance of that which is an essential element of success in every undertaking and profession, namely, a hearty interest in it. A physician must love and respect his profession, must have a deep conviction of its importance and usefulness, must regard it as an honorable and beneficent employment, as opening fields for thought, study and action, high enough and broad enough to satisfy the aspirations of a wise, just, and generous ambition. That there are reasons which justify all of us, the young who are just entering upon it, the old who have grown gray beneath its anxieties and its labors, in entertaining this high estimate of our profession, will not be disputed. I have no disposition

to say any thing in disparagement of other employments or professions.

The great chain of mutual dependencies and reciprocal obligations which runs through all the various callings of life, forming them all into one great whole, one great body, of which the head cannot say to the hand, or the hand to the head, "I have no need of thee," teaches us to respect all occupations that are conducted with integrity, and faithfully discharged. But inasmuch as none of these can be discharged without *health*, inasmuch even as that profession to which we commonly assign pre-eminence, because it aims to do a work upon the human soul that shall last for ever, and plant seeds whose issues shall go forth to eternity, inasmuch as this profession is dependent upon health, so that the preacher cannot preach with power, or the hearer receive and practically apply, unless each has, to some extent, a sound mind in a sound body, we may rightfully assign, if not an absolute pre-eminence, at least a high rank in the scale of usefulness and honor to the medical profession.

Whether we consider the themes with which, as a science, medicine occupies the mind, the field of knowledge it seeks to investigate and master, or the practical results it would produce, and, to a wide extent, does produce, by the application of this knowledge, we behold it alike clothed with the attributes of dignity and beneficence. We have high authority for the assertion, that we are "fearfully and wonderfully made." With this fearful and wonderful work, this master-piece of the Almighty (so far as we are permit-

ted to become acquainted with the creatures of his hand), the human frame, it is the purpose as well as the duty of the physician to make himself fully and thoroughly acquainted. He must understand its composition and construction; the various forms of matter that enter into it; the various modes in which they are combined, and put together, and all the laws that regulate their mutual action, and all the influences from within and without, that affect, for good or evil, that action. His studies, therefore, must take a wide range, and lead to the investigation of many profound and curious subjects. And when we look at the results he produces by the application of this knowledge; at the good it is sometimes in the power of his wisdom and skill to accomplish; at the happiness which not infrequently flows from his ministrations, we surely find enough to inspire us with professional enthusiasm and devotion; love and veneration for the healing art. There is this encouragement and satisfaction in our profession: its results, when successful, are distinct and palpable, and an unmixed good. The clergyman toils, but faith and hope are, in a great measure, his only stimulants. He plants and waters, but the year of the divine providence corresponds not with his wishes, and the harvest he effected is delayed. Even when most successful, that success is unseen but by the eye, unrecorded but by the hand of God. His work is like the dropping of water upon the jagged and uneven surface of the rock. No impression seems to be made. After a long course of time you can perceive that the surface is growing smooth and even;

but you cannot at any given moment point to distinct and evident results, to encourage perseverance and stimulate to new efforts. And the lawyer, if he succeed, knows by that very success that a brother has failed; and that, if his client has won, his client's opponent has lost: and sometimes he may have a shadow of doubt, perhaps even a humiliating conviction, that, though the verdict is in his favor, right and justice are not on his side. But with the success of the physician, no alloy of this kind mingles. He is not and cannot always be successful. He does not hold, as its absolute master, the key to the gate of life. He cannot always stay the progress of disease, nor roll back the approaching shadows of death; and though the enthusiasm and the efforts of those who have sought to discover "the elixir of life" is a curious chapter in the world's history, yet those efforts have been, and of course ever must be, vain and foolish. The physician cannot exempt and deliver man from the great law of mortality to which God has made him subject. He cannot always be successful; but when he *does* succeed, that success is a pure, unmixed success. Its result is distinct, marked, palpable to his own and others' observation; a result that brings gladness and gratitude to many hearts. When he checks a fever, gathering fierce and deadly upon the burning brow, or, by his skill and care, so moderates its violence and controls its action, that a fatal issue is prevented, and the enfeebled frame raised up to health and strength; or, when discovering the cause of intense and agonizing pain, he is enabled to

apply a remedy, and bring relief and ease to a weary sufferer, he feels that he has done a distinct and decided good, and has conferred a benefit and blessing. He has bestowed that treasure, without which life itself becomes a burden. Sometimes it seems almost as if the gift of life were in his hands; and in all scenes, from the first joyful glances which the mother bestows upon her new-born child, to the agonized appeal with which in after life that child turns from that mother's sick bed, to ask if she cannot be restored, he feels that, next to God, and more than any other human being, he holds the balance between life and death. And when he brings back hope to the fainting spirit, when he succeeds in determining the preponderance in accordance with the wishes of loving hearts and fond affections, he *sees*, he *feels*, that it is a blessed result, well repaying all his efforts and his care. Anxious days and weary nights become light and gladness, when he can call back from the gates of death the weary and sinking spirit, and restore to the arms of affection those treasures which seem about to be snatched from their grasp. He can "count up the loved" restored,

> "And as their sum shall be
> The riches of his spirit's treasury."

But, even if he fail, — and when he fails, when his watchfulness and care are unavailing to preserve life, — they are not useless or insignificant in the good they do. They bring much alleviation; and when the door of hope is shut, and death has triumphed over human skill, and wounded human affections, the physician

feels that his labor has not been utterly in vain, — abundant evidence of which is sometimes afforded him, in the gratitude and affection with which he is regarded. Sympathy in sorrow knits hearts together more closely than aught else on earth: and the true and kind physician, though his skill has sometimes failed, meets every where a grateful and confiding glance; receives from all a warm and heart-felt pressure of the hand, and lives ever in the consciousness that he is bound to those around him by no common ties of blood or kindred, but by the stronger ties of gratitude and affection. When we consider the dignity and beneficence that attach to our profession, the high subjects with which it occupies the mind, and the happy results it aims to produce, and, to a great extent, does produce, we are justified, we are called upon, to cherish a high respect, a hearty interest, an enthusiasm of devotion to it. We are unqualified for the profession, unless we so regard it.

Having thus spoken of that just estimate of his profession, that high respect, that hearty interest in it, which every physician ought to entertain and cherish, I may proceed to remark, that *integrity* is the great principle that should lie at the bottom of the medical character, to guide and command the physician, both in the preparation for and conduct of his profession. This principle should influence, and, when it exists, will influence him in respect to his qualifications; in the acquisition of that wide and various knowledge that justifies his assuming, and fits him to discharge, the duties of his profession.

The physician assumes important duties. He offers himself to the public for high and responsible trusts. He asks to have human life, amid the manifold perils to which accident and disease expose it, confided to his care. He calls upon the community to commit to his wisdom and skill those inestimable treasures, so highly prized by all, *health* and *life*. Integrity, therefore, demands that he be qualified for this trust; that he dare not to assume, that he offer himself not to assume it, without a consciousness of some honest and thorough preparation for it. And, perhaps, there is no department of human life and action, preparation for which requires such wide and thorough study as the *medical profession*. Indeed, it is hardly too much to say, that the acquirements that go to form the accomplished and thoroughly furnished physician, exceed in variety and profoundness those of any other profession. I have already alluded to the fact that the great concern of the physician is with that fearful and wonderful work of the Almighty, the human frame. But the human frame stands not apart by itself, disconnected with, and uninfluenced by other works and laws of God: and to be able to treat it aright, both in a diseased and healthy state, requires a knowledge of various arts and sciences, some of them seemingly little connected with each other or with the human body.

There are two great branches of knowledge that constitute the foundation of medicine as an art or science, viz., *Anatomy* and *Physiology*. A previous knowledge of the structure of the human frame is obviously neces-

sary to the medical practitioner; and without it he is as a blind man, dealing his blows in the dark. If he proposes to be an operating surgeon, his knowledge of anatomy must be minute, accurate, thorough. He must be acquainted with the situation, structure, connexion and purpose of every, the minutest part and portion of the human frame, and the appearance it presents in a healthy and diseased state. And this knowledge must be so familiar that it will be constantly retained in his recollection.

If he proposes to be, technically speaking, a *physician*, ascertaining diseases by the observation of symptoms, and seeking to cure them by the operation of medicinal agents, while it may not be necessary that he should constantly retain in his mind the accurate and minute knowledge that the surgeon needs, it is necessary that he should have, and have it at immediate command, a general and thorough knowledge of the structure of the human frame. And it is especially necessary that he should be well instructed in *physiology*, the science which teaches the functions of the different organs, the nature and composition of the fluids, their production, uses and discharges. But this science, to be thoroughly understood, requires at least some knowledge of many other departments of science. Indeed, there is hardly any branch of natural philosophy that does not enter into the explanation of the functions of the human body, and of which it is not important that the physician should have some knowledge. "When you inquire into this subject," says Dr. Gregory, "you

will find the human body a machine, constructed upon the most exact mechanical principles: in order, then, to understand its movements, you must be well acquainted with the principles of *mechanics*. Considering the human body in another view, you find fluids of different kinds circulating through tubes of various diameters: the laws of their motions, therefore, cannot be understood without a knowledge of the principles of *hydraulics*. The eye appears to be an admirable optical machine, and of course the phenomena of vision cannot be explained without a knowledge of the principles of *optics*. As the human body is surrounded with an elastic fluid, the air, subject to various changes in respect of gravity, heat, moisture and other qualities which have great influence on the constitution, it is proper to be acquainted with the nature and properties of this fluid, the knowledge of which constitutes the science of *pneumatics*. It were easy," he continues, "to bring many more examples to show how necessary a knowledge of the various branches of natural philosophy is to the right understanding of the animal economy."

We cannot but subscribe to these remarks of Dr. Gregory, and perceive that, even as he has stated the matter, a wide range of scientific knowledge must be embraced by the well instructed physician. But this is by no means its limit; nor does it present some of the most important and profound subjects of inquiry which the physician must investigate. Passing by, with a simple allusion to it, the absolute necessity of an extensive knowledge of

chemistry to the elucidation of the changes that are induced in the fluids of the human body, in their combinations and properties, we are to consider that there are principles and phenomena connected with the human frame, inexplicable upon any or all the principles of natural philosophy, of mechanical or chemical science. Attempts have been made, indeed, to explain the phenomena of the human body upon mechanical and chemical principles. But these attempts have always failed. The human frame possesses something above and beyond these principles. It possesses an internal, self-sustaining, self-moving power or principle, which directs and influences, by laws peculiar to itself, its internal operations. What can be ascertained, and all that can be ascertained of this power or principle, and of the laws by which it acts, the physician must know. Hence it is necessary for him to study, by a series of minute observations, all those phenomena that are the result of *life;* to inquire into the laws of that faculty, which is called the *vital principle, sensorial power, nervous energy,* &c., and the almost infinite multitude of phenomena that are dependent on, or caused by that faculty, and the changes that are effected by its healthy or diseased action, — an inquiry necessarily rendered obscure and difficult from the circumstance that this power or faculty is not directly cognizable by the senses, — it is internal, — and these phenomena can only be ascertained by indirect inference, by external and obvious signs or symptoms.

But that he may not be misled, in judging of these signs or symptoms, it is necessary that the physician (and it is a very important part of his physiological knowledge), it is necessary that the physician should study and understand all those diversities of the human constitution that are caused by various circumstances, such as climate, age, sex, manner of living, original temperament and individual habits of body; because all these things modify both the nature and progress of disease, and the operation of remedies.

Again, though the physician need not be an acute metaphysician, and may certainly be excused for eschewing the labyrinths and subtleties of mental philosophy, he ought, certainly, to be acquainted with the faculties of the human mind, and the mutual influence of the mind and body upon each other. He ought to understand all the principles and phenomena connected with the power of habit, the effects of enthusiasm, the force of imagination, and the influence of the principle of imitation on the functions and diseases of the body: and for this purpose, what a wide, curious and interesting field of observation is it necessary for the physician to explore with profound and thoughtful study!

But all these branches of knowledge, numerous, comprehensive, and many of them profound, as they are, are only preliminary to the great practical duties of the physician, which consist in the diagnosis and cure of diseases. After he has made himself master, to some

extent, of physiology, comes the great and appropriate work of his profession, which is built upon it, viz., *pathology*, or the general doctrine of the causes, symptoms and effects of disease, which, by wide observation and study, he must learn to detect and discover. But if he stop here, he is indeed a learned, but perfectly useless spectator of the sufferings consequent upon disease. His knowledge of causes and symptoms is worthless, if he have no knowledge of remedies, — if he be ignorant of all the means of controlling or modifying the action of diseases. Here comes in the crowning knowledge of his profession in which he must instruct himself, — its great and blessed purpose for which he must prepare himself. He must make himself master, as far as he can, of *therapeutics*.

Here, then, would seem to be no limit to the knowledge and experience which the physician may be and should be constantly acquiring — no boundaries to the field which his profession aims to explore. It embraces all nature. Every property of every substance in the animal, vegetable, and mineral kingdom may have some connexion, as cause or remedy, with human disease: and the more extensively and thoroughly these properties and this connexion are discovered, the farther is the science of medicine advanced. But what a field is here for study and investigation! What discoveries have been made in it! What discoveries yet remain doubtless to be made! It is not by the labors of an individual, nor yet by the united labors of an age, that the knowledge of the

materia medica has been brought to its present comprehensive extent. It is the combined result of the experience and practice of all physicians of all ages, from the days of Hippocrates until now, aided by the researches of travellers and naturalists, and the discoveries and combinations of chemists.

I have thus given a brief and rapid glance at the various departments of knowledge, that are, to a greater or less extent, embraced in the medical profession, contribute to its usefulness, its progress and its honor,—and in view of these, I say that *integrity* demands of every man who offers himself to the public as a practitioner of medicine, that he have some acquaintance with all these various departments of knowledge. If he be ignorant of them, he is dishonest and unprincipled; and if he be grossly and notoriously ignorant of them, his dishonesty is only equalled by his impudence and his assurance. Yet this dishonesty prevails and always has prevailed. From the earliest ages to which the history of our profession carries us back, there have always appeared ignorant pretenders to *panaceas* and infallible and universal remedies. This has been one of the most successful forms of imposing upon the public, and acquiring a fortune, that human craft and selfishness have ever invented. And the extent to which *quackery* thrives at the present day, sanctioned and upheld by government in the protection it grants to all sorts of *patent* medicines, almost leads one to adopt the paradoxical conclusion, that human credulity, and a willingness or

desire on the part of the community to be deceived, increases in a geometrical proportion with the intelligence of society.

If, however, the brief review I have given of the varied and comprehensive knowledge requisite to form the accomplished and thoroughly furnished physician be correct, it follows, of necessity, and may be laid down as an axiom in medical morals, that the quack or empiric, who, unqualified for, and negligent of, the task of pathological investigation, makes and administers any drug or compound as a universal remedy for any given disorder, without regard to the variations of that disorder, without consideration of its different stages or degrees of violence, or its occurrence in different constitutions, climates or seasons, in persons of different ages, sex, temperament, strength, etc., it may be laid down as an axiom that this person is dishonest. Quackery and dishonesty go together. Ignorance and selfishness are its chief ingredients.

But that *integrity*, which, I contend, should be at the bottom of the medical character, will influence the physician not only in preparing and qualifying himself for his profession, but in discharging its difficult and responsible duties. These duties require that he be constantly under the control of this high principle, and sometimes place him in a position where it is a delicate and difficult matter to meet its just requirements. The physician is received and welcomed as a friend in every family that he visits professionally. No reserve, no concealments are practised with him. The doors are open to him at all hours; not even the

clergyman is placed upon the familiar footing, that necessity requires that he be received. Sometimes from choice, often because circumstances demand it, he is made acquainted with the private, domestic history of the family, or its individual members. Integrity demands that he violate not the confidence reposed in him. He must resist all tendencies to a gossiping disposition. He must preserve locked up in his own breast, that knowledge of individual character and the domestic circle, with which his professional duties necessarily make him acquainted. He must show, by his caution, and prudence, and kindness, qualities which can have a stable foundation only in a high principle of integrity, that he may be trusted and relied upon as a friend, as well as confided in as a physician.

But the physician is constantly liable to be placed in a position, where the requirements of integrity will be of the most delicate and difficult character. He will be asked, either by the sufferer himself, or by the friends, that in anxiety and affection minister at his bedside, to give his opinion as to the condition of the patient,—to say frankly, what, in his judgment, will be the probable result of the disease;—and, to determine what answer he shall make, or ought to make, may often be a nice and delicate question. His judgment and conviction as a physician, and his kindness of heart as a man, his unwillingness to extinguish the spark of hope, though there be in reality no justifiable ground on which to rest it, may be at issue, and tempt him to modify or withhold the opinion which *integrity,*

the truth of the case, and, it may be, a just regard to the spiritual and immortal interests of the patient require that he should kindly, affectionately, but firmly and fully declare. Undoubtedly there is room here for a wide and wise discrimination; and an intelligent and benevolent physician will take into just consideration all the circumstances that attach to each particular case,—the constitution, temperament and character of the patient, the temporal and spiritual condition of the family and friends, that in mingled hope and fear, hang upon his words,—and be guided by these in the opinion he expresses,—in the communications he makes. Still, I think, it may be laid down as a general rule, that the great law of Christian morality, that we "*speak the truth in love*," holds here. Integrity demands, the highest kindness sanctions, its observance.

Another class of qualities essential to the success and usefulness of a physician may be ranked under the head of *independence of mind.* The physician must be a man of firmness, decision, self-reliance; able to meet emergencies, to think and act for himself as the case before him demands, and not as a servile imitation of the course of treatment described in a case somewhat similar would suggest. He must be superior to the inveterate prejudices of time-honored theories and the seducing novelties of caprice and fashion, neither adhering to the one, and opposing the other, nor abandoning the one, and adopting the other, with an obstinacy or a facility, alike to be condemned by a calm, clear, comprehensive judgment. He must not suppose all truth in the science of medicine to

have been ascertained, nor accept with slight questioning every thing new as true, to be confided in and practised upon. With a mind open and active, with an observation extensive, accurate and discriminating, with the feelings that arise from association, habit, and long cherished opinion, under the control of the judgment, he must "prove all things, and hold fast that which is good."

In every department of life, these qualities, which I have comprehended under the term independence of mind, are important. No man ever accomplished any thing valuable without them,—but to the physician, they are essential. It is not enough for him to possess knowledge, or even experience. Were the latter sufficient, an old hospital nurse, who, for years, had watched the daily and hourly progress of all sorts of diseases, would be the best physician; and were knowledge sufficient, the student, who is fresh from the lecture-room, the professor, who has all the learning of books and treatises at his command, would be the safest reliance of the sick in the hour of peril. The physician needs both knowledge and experience; but above and beyond these he needs an *independent mind*, that can at once bring in review all the principles embraced in his knowledge and experience, and act with decision and promptness in their application to the case in hand. A person may be familiar with all the principles of navigation, or, with but slight knowledge of these principles, he may have a practical acquaintance with the ordinary management of a ship, but unless this theoretical and practical knowledge be at

the command of an independent, resolute, and ever active mind, that, when a storm, or any sudden emergency arises, shall be able to discern and decide with the requisite promptness what is best to be done, it does not qualify one to take command of a ship. The principle of the illustration is equally applicable to the physician. No other profession, perhaps, involves such an amount of unshared responsibility as ours; or makes such demands for a prompt, varied, yet wise, application of principles and knowledge. The physician cannot meet these demands, if he be a mere imitator, having little self-reliance, little independent action of his own mind in his own practice. Yet there is no profession, perhaps, in which there are stronger temptations to imitation, none in which men are more naturally and easily, and from high and pure motives also, led to yield to the authority of great names, and to adopt and follow the theories and modes of treatment which their authority sanctions; and undoubtedly here as in every thing else, deference is to be paid to the wisdom of the wise, and the observation of the experienced. But this deference should simply be an element to guide, not a power to control the judgment, and cripple the action of the individual in his practice; and when it becomes the latter, it exceeds its province, and mistakes and absurdities must mark the practice in which it prevails.

I commend not a presumptuous self-confidence, or the hasty judgment that is formed without a minute observation and a deliberate weighing of all the symptoms and circumstances that accompany each

particular case of disease, or that threaten its progress. I commend not that rapidity of decision and action, which is often the offspring of ignorance; an ignorance that experiences no difficulty in deciding, because it anticipates no consequences, and knows not what consequences to anticipate.

Doubtless, the profession and the community suffer much from this source. Unquestionably injustice is often done the former in this respect. A physician is commonly expected and called upon to act with prompt decision in all cases, and if he hesitate, or doubt and delay, though the doubt proceed from superior knowledge, from a large and wide observation, and desire amid contending difficulties to choose the most eligible course of treatment, it is usually accounted proof positive of ignorance and insufficiency. It has been well observed in reference to our profession, that "a man must have merited the confidence of the world, before he can obtain time for consideration, and his reputation must be firmly established before he can own himself at a loss." A bold, confident, decided, dogmatical air, that never hesitates, is never at a loss for an opinion as to the nature of the disease and the best mode of treatment, has ever been the capital of the quack, his great stock in trade. Its effect is like that of a rich and gorgeous display of goods at a shop window, seducing unwary customers to enter, but shutting out the light by which they may judge of the quality of what they purchase. I commend not, I approve not this. Even at the risk of a loss of professional reputation in the estimation of the weak-

minded and inconsiderate, I would have a physician hesitate, and doubt, and delay, if the difficulties of the case and his thorough perception of them embarrass his judgment. Because he is in doubt what to do, I would not have him do he knows not what.

By independence of mind in a physician, I mean not an independence alike of all principles of medical science and of sound morality. I mean simply that he should keep his mind open and active, superior to the littleness of theoretical prejudice, and the rashness of novel and capricious practice; that he should exercise his own judgment, consider that in the circumstances of every case, in the diagnosis of the disease, in the habits, constitution, idiosyncrasy of the patient, there is something peculiar to that case and patient, of which he is the sole observer, and must be the sole judge; and that, in the vigorous and energetic action of his own mind, he apply the principles and knowledge of his profession that he has acquired. It is only thus that he can fully develop his own abilities, or attain to eminence and usefulness in his profession.

But I find that the subject I have attempted to treat is altogether too extensive to be fully discussed in a single discourse, especially by one who, unaccustomed to express them, has little power of condensing his thoughts, without making a larger demand upon your time and patience than I dare to be guilty of. I pass by some topics that had come up in mind to be remarked upon, such as punctuality in fulfilling his engagements with his professional brethren and with his patients, and that courtesy which should always

mark professional intercourse; that charitable spirit which should actuate him in judging of the conduct of others; and will detain you only while I observe, in conclusion, that it deserves to be considered as one of the requisite qualifications of the physician, that he be a religious man. This, indeed, may be predicated of every human being. The physician is a man exposed to the discipline, trials and sorrows of life, and, in common with all, he needs and must desire the peace, safety and eternal happiness which religion alone secures and confers.

But there are considerations arising out of his profession, its duties, exposures and opportunities, which make religious faith, hopes and affections, important qualifications for the right discharge of that profession. I can only throw out a few hints upon this topic, without stopping to unfold them. In the first place, his profession exposes the physician to great and peculiar temptations, which religious principle will alone enable him successfully to withstand. It subjects him, also, to peculiar and severe trials, which only religious faith will give him strength to bear with patience and humility. There are hard trials often in the early part of the profession. Here is a young man of varied and profound acquirements; of good, perhaps high endowments; conscious of a capacity for usefulness, and eager for employment; but the hours hang heavily upon his hands. Few seem disposed to trust his youthful wisdom, or test his unestablished skill. The doors of professional success seem shut and barred against him; and, when they begin to open,

they turn slowly and heavily upon their hinges, and threaten often to swing back upon him, and close more firmly than before. Few of the paths of life are encompassed, in the outset, by severer trials than those of our profession. How shall the young man bear them with patience? How shall he keep up a good heart, and "bide his time" with cheerfulness and hope, unless he have a holy trust in that over-ruling Providence, that appointeth the lot of all, and ultimately smiles upon every honest purpose, and honorable endeavor. And when these early obstacles are surmounted, and full employment and professional fame are attained, there are different, yet severer trials, perhaps, to be borne.

In the early part of my discourse, I spoke of the gratification accompanying the successful application of skill and knowledge in our profession. But when this application is not successful, and the physician finds himself baffled and powerless, and a life of incomparable worth in its sphere, — a father, whose designing head and executing arm were the stay and support of his family, — a mother, whose holy influence and blessed presence were the light of her dwelling, — passes away, and he witnesses the scene of bereavement and sorrow, which his utmost skill and care have been impotent to prevent, — if he is a man of any sensibility, what can relieve or sustain him but a religious trust in that Being in whose hand is the breath of every living thing?

But again, the physician has opportunities of usefulness; of quietly, indirectly, unostentatiously exert-

ing a blessed and benevolent influence, which only a mind illumined by religion — a cultivated religious faith and hope—can enable him rightly to improve. If his character be worthy of his profession, he will be received and treated as an intimate friend, as well as a medical adviser. He will be made acquainted with the secrets of life and character; he will be present at scenes when these will develop and manifest themselves; and at scenes and under circumstances which soften the heart, make the mind impressible, and lay bare the conscience to be touched and quickened by the hand of gentle and affectionate friendship. Indirectly, without obtrusion, or the professional air of the clergyman, he has opportunity, at such times, by a few kind, gentle and affectionate words, — words of sympathy, counsel, encouragement or admonition, — of leaving lasting impressions; of rendering incalculable service.

Amid the scenes, and in the exercise of the skill by which he raises up the physical frame from weakness or disease, he may, by the direct or indirect influence of his character, manners and conversation raise up the soul to the liberty and joy, the *moral health of virtue*. I stop not to make the qualifications; to point out the prudence and caution to be observed here, that we sink not the physician in the priest. You will make those yourselves. I only say, that the physician cannot meet the peculiar opportunities for moral influence which his profession opens to him, unless he be a religious man.

And, in conclusion, I observe, that unless his mind be cultivated and imbued with the spirit of religion, he cannot resist the tendencies of his profession to make his heart callous and insensible. Our profession has these tendencies. I need not to illustrate them. It makes us familiar with human suffering in all its forms, from the simplest to the most aggravated; and the effect of familiarity is to beget indifference. Our path is one by the side of *death.* Accustomed to contend with him, and often successfully, we are in danger of becoming insensible of his power, — forgetful that we ourselves are subject to him, — forgetful, it may be, of the scenes which await us when that power has been exercised upon us. Let the events which almost every anniversary of our Society calls us to notice, recall us from our professional to moral responsibility. During the past year an unusual number of our profession, — seventeen members of the Society, — have departed this life, many of them in the midst of their usefulness and activity. I need not name them, or eulogize them. They have reared their own monuments in their honored and useful lives. While we cherish their memories, let us be cheered by their example, and instructed by their death.

BIOGRAPHICAL NOTICES.

The following members of the Society have died since the last annual meeting:

1843.		Entered the Society.	Age.
June 28,	Chandler Smith, Worcester,	1837,	40
" 19,	Augustus T. Parker, Shirley,	1825,	47
July 25,	Simon B. Carpenter, Dedham,	1833,	42
Oct. 12,	Jonathan Wales, Randolph,	1822,	65
Dec. 10,	Thomas Bucklin, Hopkinton,	1812,	71
" 20,	John Randall, Boston,	1803,	69
	James Fiske, Milford,	1838,	33
" 27,	John K. Briggs, Dedham,	1827,	49
1844.			
Jan. 28,	John C. Howard, Brookline,	1832,	38
Feb. 4,	Henry G. Wiley, Boston,	1837,	28
" 27,	Benjamin F. Parker, Roxbury,	1839,	33
April	Isaac Boyd, West Newbury,	1834,	44
" 13,	John B. Stebbins, South Boston,	1830,	42
" 14,	Thaddeus Spaulding, South Reading,	1819,	52
May	Pierson Kendall, Sterling,	1812,	70
" 10,	Calvin Ellis, Hopkinton,	1831,	41
" 23,	James Thacher, Plymouth,	1803,	90

JAMES THACHER, M. D.

Dr. James Thacher died at Plymouth, May 23d, 1844, aged 90. He was born in Barnstable, 1754. His opportunities for education were such only as the town schools, at that period, afforded. His professional instructer was Dr. Hersey, of that town, a physician of much celebrity in his day, and of very extensive practice, which was bounded only by the limits of his county. He is still remembered as a liberal benefactor to Harvard College, and his eccentric character has been faithfully delineated by his pupil, in his "American Medical Biography."

At the commencement of the Revolutionary war, Dr. Thacher entered the army, as a surgeon's mate, under the

late Dr. John Warren, of Boston. He was soon promoted to be a surgeon, and in that capacity served during the war. He was present at many of the principal battles of the Revolution, and terminated his services at Yorktown. He was an eye-witness of the execution of Major Andre ; and the most exact and faithful account of that scene is to be found in his "Military Journal."

At the close of the war, Dr. Thacher settled in Plymouth, and, during a large portion of his life, was actively engaged in an extensive and successful practice. By the industrious application of the powers of a naturally active and inquiring mind, Dr. Thacher earned an extended and well-merited reputation, both as a physician and an author. He possessed, as a writer, a facility in narration, and an easy flow of style, which have given his unprofessional works a degree of popularity and success, beyond what more elaborate productions might have obtained. His situation, at an early period of life, as a surgeon in the army of the Revolution, gave him a knowledge of men and events, which he embodied in his "Military Journal," a book which, at the time of its publication, met with peculiar favor, and which still retains a respectable rank among those purporting to transmit a lively impression of the feelings of the period to which it relates. His published medical works are the "American New Dispensatory," "Observations on Hydrophobia," the "American Modern Practice," which has passed through two editions, and the "American Medical Biography," in all which he displayed his characteristic diligence in the collection of materials, and a commendable skill in his manner of using them. He also published a "History of Plymouth," a well-known and useful work. Dr. Thacher was also the author of several minor works, creditable to him as a writer, and furnishing proofs of an untiring industry, which surmounted the imperfections of early education, and which brought with it its reward in the

satisfaction he enjoyed of having done his part in the attempt at human improvement.

As a practitioner of medicine, Dr. Thacher possessed good judgment, and a spirit of investigation into the application and uses of articles of the materia medica indigenous to our own country, which procured him no little celebrity. His knowledge and experience in surgery led to frequent calls at a distance, as well as at his own home, and as an operator he was distinguished for promptitude and skill.

The excellence of Dr. Thacher's private character secured him the affection and esteem of a wide circle of friends. Of the religious and political institutions of his country, he was a warm and conscientious supporter. As a citizen, he was eminently public spirited and disinterested.

We are gratified to learn that Dr. Thacher has left a memoir of himself, which we hope will be presented to the public. A full account of his pure, useful and honorable life cannot fail to be interesting and instructive.

THADDEUS SPAULDING, M. D.

Dr. Thaddeus Spaulding, who died suddenly, of inflammation of the lungs, at South Reading, on the 14th of April last, was born in Townsend, Nov. 1st, 1791. Possessing naturally a great thirst for knowledge, he was not satisfied with the pursuits of agriculture, to which his father was devoted, and in which he wished his only son to engage for life. He therefore determined to prepare himself for one of the learned professions, and in the midst of many obstacles and discouragements, he entered upon a regular course of study. He pursued a part of his medical studies under the instruction of the distinguished Dr. Matthias Spaulding, of Amherst, N. H., and attended lectures at Dartmouth College.

In the year 1815, he established himself in practice in South Reading, and soon after became connected, in marriage, with the family of the late Dr. John Hart, who was celebrated as a surgeon and physician in that place and vicinity, for more than half a century.

Dr. Spaulding resided nearly thirty years in South Reading, and, for most of the time, had an extensive practice. While there was nothing peculiarly striking, either in his medical acquisitions or character, yet he was always regarded as a very skilful and successful practitioner of medicine. In his knowledge and treatment of disease generally, he relied more on observation and experience, than any information derived from books. In the department of obstetrics, he had extensive experience, and proved himself a very successful accoucheur. In all his intercourse with his patients, he was remarkably kind and attentive; and such were the blandness of his manners, the dignity of his deportment, and the tenor of his remarks, that they were peculiarly calculated to inspire confidence and command respect. But it was in the capacity of a business man, and in the relations which he sustained to the public, for which Dr. Spaulding was mainly distinguished.

For more than twenty years he held a commission of justice of the peace, and performed a great deal of business connected with this office. He was always looked to, by his fellow-townsmen and citizens as a faithful counsellor and able adviser in adjusting all difficulties, and in carrying into effect all the public enterprises of the day. The Rev. Joseph Bennett, of Woburn, while speaking, in his funeral sermon, of the deep sensation which the death of Dr. S. had produced among the people of the neighboring towns, remarked: "They have long known his amiable disposition, his sprightly talents, his pleasing manners, his social qualities, his peculiar activity in business, and his rising reputation and usefulness as a physician, as a statesman, as a citizen, and as a Christian."

Dr. Spaulding possessed an unusual share of public spirit, and always took a great interest in all matters appertaining to the affairs of the state and nation. In the year 1841 he was chosen a member of the Executive Council, and was again re-elected in 1843, which office he held at the time of his decease. It is believed that few individuals ever manifest, in a stronger degree, or more disinterested manner, the elements of true republicanism and patriotism. He was also a firm believer in the doctrines of evangelical religion, and, in his last illness, was remarkably sustained by the consolations of that gospel which he had so long professed. And, though the messenger of death came unexpectedly, in the midst of urgent business and great usefulness, in the very meridian of life, and with the most flattering prospects, he was perfectly resigned to his situation, and awaited his final dissolution with a calmness and composure becoming the Christian.

JOHN RANDALL, M. D.

Dr. John Randall was born in the town of Stow, Mass. Though possessed of few advantages, of a constitution far from vigorous, by energy and untiring application, he fitted himself for college, and graduated honorably at Harvard University, in 1802. In 1806, he entered upon his professional career, in which he was eminently successful. His exertions were continued, with but one interruption, until his death. In 1809, when consumption, to which he was naturally inclined, threatened to put a period to his life, he left home, and spent two years in the southern parts of Europe and America; and it was not until after the lapse of several years that he was again able to engage vigorously in the labors of his profession, in the performance of which he

united skilful treatment of his patients, with genuine and native kindness of deportment. Throughout his life, he displayed great energy of purpose, and activity in the pursuit of knowledge, combined with integrity of character and active beneficence. He was attacked by severe illness eight months before his death, and from that time gradually declined. During this time his sufferings were excessive; and he had scarcely any intervals of relief; yet, notwithstanding his constant endurance of pains, which he had reason to suppose could only terminate when the exhausted powers of nature could no longer endure, he bore with submission and fortitude the trials to which he was called, and cherished throughout a steady faith that present darkness would be succeeded by fulness of day, whose beams even yet began to penetrate the gathering shadows of the tomb.

Dr. Randall died in Boston, on the 20th December, 1843.

HENRY G. WILEY, M. D.

Dr. Henry G. Wiley was born in Lynn, in March, 1814. In early youth he did not enjoy good health, and during his collegiate course, at Brown University, he suffered from severe hœmoptysis, accompanied with other symptoms of pulmonary disease, from which he never wholly recovered. He was always liable to a cough, and eight years since exhibited unequivocal signs of tubercular disease. He however so far recovered his general health as to complete his studies at the university, where he graduated, in 1833. At this time his health was much improved, and he entered upon the study of medicine with zeal, in the office of Dr. Perry, in this city, with whom he continued until he received the degree of doctor of medicine, in 1836.

Dr. Wiley was one of several victims who have recently fallen while attempting to gain a knowledge of pathological

anatomy. About a fortnight before his decease, he attended a post mortem examination of a patient, whose disease was acute peritonitis. Although he did not perform the dissection himself, yet he probably touched the body with one of his fingers, the skin of which was slightly abraded near the end. A few days afterwards, while engaged in his professional visits, he had a sudden, severe chill, and the finger became inflamed and painful. The pain and slight redness soon extended to the arm. Under the use of copious local blood-letting, the principal morbid symptoms were relieved, so that, within a week, he left his chamber. But great debility and extreme languor remained, and tonics seemed wholly to disagree with him. Soon after, he was seized with violent pain in the epigastrium, and, when this was removed, pains of similar severity attacked various parts of the extremities, accompanied with inflamed spots. A diarrhœa supervened, which nothing would restrain; and, amid much suffering, which he endured with exemplary patience, and a full conviction of his approaching end, he died, February 4, 1844. Thus, in seeking knowledge, to enable him more effectually to combat the diseases of others, he lost his life.

In his intercourse with mankind, Dr. Wiley was courteous and agreeable, — with his professional associates, honorable, and with his patients, sincere and prudent. He was frank and candid with all:

"E'en his failings leaned to virtue's side."

His sincerity, his kindness of heart and affable deportment, could not fail to win for him the esteem of many, which was manifested during his illness, by anxious inquiries, and after his death, by heart-felt grief.

"For me the future has no gloom," were his words a few days before his death, — words most appropriate to one who,

having "acted well his part," in the various relations of life, was possessed of a hope of a blessed immortality.

[From the Boston Medical and Surgical Journal.]

THOMAS BUCKLIN, M. D.

Dr. Thomas Bucklin, of Hopkinton, was born in Rehoboth, now Seekonk, Bristol county, September 28th, 1772, and died, December 10th, 1843. His father, Mr. John Bucklin, was a respectable farmer of that town. His advantages for an education were ordinary for that day. He commenced his professional studies when about 18 years old, with Dr. Humphry, of Pawtucket, R. I., and continued with him about one year. He then put himself under the tuition of the late Dr. Thurber, of Mendon, with whom he continued two years.

In May, 1793, Dr. Bucklin commenced his professional life in Hopkinton, Mass., where he pursued the practice of medicine fifty years. He was admitted a member of the Massachusetts Medical Society in 1812, and has been a counsellor of that society more than twenty years.

Few physicians have reached a more eminent standing in the community than the late Dr. Bucklin. When young in the profession he gave evidence of promise. He was naturally zealous and enthusiastic, and followed up his investigations of disease with great industry and earnestness. Prompt to his business, attentive to his patients, and happy in his results, he soon became a noted physician in his town and vicinity. During the last forty years of his life, no medical man was more devoted or more laborious in his pursuits. He was emphatically a student during his whole life; and his strong powers of perception, and retentive memory, made him rich in facts, which he had been accumulating during a long life of experience. His urbanity, his hospitality, and his love for a social hour, will not soon be forgotten.

Dr. Bucklin's manners in the sick-room were most benignant and affable — he seemed always to be in unison with the sick man's feelings. No one sympathized more readily, more actively, with the suffering; and his sympathy could not be restrained — it was impulsive. His moral sensibilities were exalted and refined. But if there was any one quality of his heart that prevailed — that seemed to act as a presiding divinity over the man — it was his benevolence. The community in which he lived will not soon forget or cease to feel the influence of his generous acts. In every public improvement, in every effort for moral elevation or intellectual advancement, or for enhancing the interests and comforts of the community, the heart and hand of Dr. Bucklin were readily enlisted. The loss of so worthy a man, and so able a physician, must be felt by the public, and especially by those who depended upon him in sickness.

We make no attempt to represent the value of such a man as Dr. Bucklin in the family relationship. Those who enjoyed his company daily must realize how difficult this would be. His example as a husband, a parent and neighbor, will have the deepest impression on those who knew him most intimately.

That Dr. Bucklin had no faults, we would not say; for we cannot say that of any man. We knew him to have one sin — but it was an amiable one — the sin of tolerating an opinion differing from his own, especially if that difference was of no practical advantage; and if, in his view, it had an important bearing upon results, his manner of correcting that opinion was most lenient and Christian.

Thus briefly we have alluded to our deceased friend; and if what we have written should serve to retain in a more compact form the elements of his character, or prove an humble tribute of respect to his memory, it will be sufficient for our purpose.

ARTICLE IV.

ON THE TREATMENT OF COMPOUND AND COMPLICATED FRACTURES.

BY WILLIAM J. WALKER, M. D.

FELLOW OF THE SOCIETY.

[Read at the Annual Meeting, May 29, 1845.]

'Instruire les gens par Observations, c'est les instruire, pour ainsi dire, par figures, et par de vives peintures qui representent au naturel les maladies.' *Petit.*

'Those who are employed in recording cases on unquestionable facts, give us the true and only picture of diseases. They speak of none which they have not seen. But systematic authors, obliged to explain each disease in its order, give descriptions of diseases widely distant from truth, describing what manifestly they have not seen, and explaining, without the slightest remission of their wonted confidence, what they have not learned and cannot know.' *John Bell, Principles of Surgery, Vol.* III. *page* 99 *Quarto Ed.*

'Per varios usus artem experientia fecit
Exemplo monstrante viam.'

Mr. President, and Gentlemen
of the Massachusetts Medical Society,

I propose on the present occasion to offer you some observations on compound and complicated fractures of the bones; confining myself principally to some of the most important practical points of treatment; illustrating my views on this subject by cases which have occurred under my own observation; and placing at their side the reports of similar cases treated by distinguished surgeons of the present and past ages; I have

adopted this course, believing with a writer * of the last century, 'That a publication of real cases is, without doubt, the only way of determining what it is of so much importance to know in surgery, 'Quid natura faciat, aut ferat.'' I will likewise say, with the same distinguished writer, 'the present collection contains some remarkable instances of the surprising power of nature in the relief of injuries offered to her, such as theoretical reasoning would hardly allow us to hope for. They cannot therefore fail of being useful and agreeable to the followers of the healing art, if faithfully related; and I can assure the public, that it has been my aim to represent facts as they really were, not as they would tell the best.'

Aware that the value of detailed cases must depend upon the ability and accuracy with which they have been observed, as well as upon the fidelity with which they are reported, I have avoided bringing forward such cases as I might have found in journals and other ephemeral productions, and have confined my researches to the writings of men whose names are a sufficient guaranty of the truth and accuracy of their several memoirs.

Here, then, gentlemen, I place at your disposal several cases of compound and complicated fractures which have occurred under my own observation, numbered from one to six.† At the same

* Cases in Surgery, by Charles White, F. R. S.—*London*, 1776.

† See Cases annexed.

time, I present you with other somewhat similar cases, selected from the highest authorities, and numbered from seven to twenty-three, inclusive. These cases, as I think, prove the powers of nature in healing compound fractures, attended with great contusion, laceration, and loss of substance of the bones, and of the skin, and other soft parts, to be much greater than is generally supposed. They also show us that large portions of bone, when lost by accident, or removed by art, may be reproduced by the powers of nature: and they illustrate, in a striking manner, the truth and importance of certain practical precepts established by the older writers on surgery, with respect to the treatment of wounds, complicated with fractures of the bones. The precepts to which I allude are,

First, that all tendinous or membranous structures which obstruct the removal of foreign bodies, or unduly confine or strangulate the soft parts, when swollen by inflammation, should be promptly and freely divided.*

Second, that such dependent orifices should be preserved, or counter openings made, as will, when aided by position and dressings, secure the free

* But there are cases, as I have before said, in which a surgeon of resolution may preserve a limb, even where amputation may appear to be indicated. In such a case, besides attending to the general rules of treatment, he should never neglect making free dilatations of the membranous parts with deep incisions. By the use of such means, inflammatory swelling is dissipated and the cure rendered much more certain.—*Bordenhave, Mémoirs de L'Académie Royale de Chirurgie. Vol. 5.*

discharge of all fluids which might otherwise stagnate within the wound.*

Third, that portions of bone protruding through the integuments, which cannot, easily and without violence, be reduced to their proper place, should at once be removed by the saw: † and that all foreign bodies,‡ loose portions, or shivers of bone, should be promptly extracted from the wound.

Fourth, that great pain, inflammation, or nervous symptoms, depend rather on peculiar complication, than on the extent of the wound. And that they

* Un vrai chirurgien ne se contente pas de remédier aux accidens présens, il faut que son intelligence lui fasse appercevoir les événemens avant qu'ils arrivent. L'experience a appri qu' on pouvoit prévoir dés la premiére inspection, le besoin d'une countre ouverture, pour suppléer, dans l'intention sus dite, aux ouvertures de la plaie moins avantageusement situées. On ne doit rien négliger pour le succès dans un cas aussi grave.—Martinière. Memoires de L' Acad. vol. 2 and page 23.

† Antequam reponantur, considerandum est an os eminens in propriam cavitatem, beneficio debitae extensionis, citra violentiam, et convulsionis periculum, restitui possit, nec ne? Si potest citra periculum restitui, restituatur; sin minus, non restituatur. Periculosam restitutionem indicant proëminentia magna, inflammatio, et pars, ob musculorum contractionem, dura. Quod, si ergo restitui nequit, eminens nudum forcipe præcidendum, et postea, fractura, per modicam factam extensionem, coaptanda. Melius enim est membrum aliquantum brevius reddere, quam ossa non coaptata relinquere vel violenter extendere. Quorum utrumque argrotanti convulsionem et mortem afferret.—*I. Scultetí. Armamentarium Chirurj. Renovatum et auctum Amstelodami.* 1671, *Page* 21.

‡ Richard Wiseman says, 'cleanse the wound first from all strange bodies, as bullets, armour, apparel, and shivers of bone. So shall the cure succeed more happily.' In another place, he says, 'Therefore to prevent sinuosities, you are to enlarge the orifice at the first, and keep it so wide open, that the matter which is daily there ingendered may have free passage out.' Again, 'If you make not this dilatation in the beginning, you may afterwards, perhaps, be forced to do it, when the part is accompanied with great defluxion and pain, or when the bones are corrupt by retention of the matter: and what condition it will then be in to admit of incision, may be easily guessed by any one that hath common sense.' vol. 2, p. 178.

indicate great danger* unless rightly understood, appropriately treated and relieved.

As illustrative of the principles here advanced, I propose now to read to you a single case, selected from the second volume of Gooch's surgery, trusting that the other cases which I have selected and hereto annexed, as a basis of this essay, will repay you for the trouble of reading them at some leisure moment.

'July 11th, 1739, J. W. of B. about twelve years of age, had both the tibia and fibula, fractured, by the wheel of a wagon, heavily laden, passing obliquely over the limb in a deep rut, from just beneath the knee externally quite to the extremity of the heel, making the most horrid, large lacerated wound we ever saw, with about nine inches of the tibia projecting.

'At first sight we knew not how to act for the best in a case so dismally circumstanced; we de-

* Neither must you have lesse care of binding up and rolling the part, than of your medicines: For it doth not a little conduce to the cure, to binde it so fitly up as it may be without paine.—*Ambrose Paré. Translated out of Latin and compared with the Freuch by F. W. Johnson. London. Anno* 1634, *Page* 424.

J'ai un grand soin d'empécher que le blessé ne souffre aucune douleur en quelque lieu que ce soit de la jambe.—*Traité Complet de Chirurgie. Par M. G. de la Motte. 3me edition par M. Sabatier. Vol.* 2, *Page* 587.

The whole welfare of the patient depending upon the easy bandage and position of the member.—*Chirurgical Treatises by Richard Wiseman, Serjeant, Chirurgeon to King Charles, 2d. 5th Edition. Vol.* 2, *Page* 181. *London*, 1719.

Again. If it (the bandage) could not have been so put on, I should have forbourn the use of them, the cure of these wounds consisting in the easy dressing and quiet position, without which you will not cure one of them.—*Wiseman, Vol.* 2, *Page* 187.

liberated upon it, and at length resolved to saw off a considerable portion of the bone, [according to Fig. 1*; Pl. 16,] rather than instantly amputate the limb. We then snipped off the loose and tattered teguments, removed some sharp-pointed fragments of the bones, brought the parts into as good a state as we could, dressed in the common manner as lacerated wounds require, and placed the limb in a case of stiff paper, well lined with wool, tow, etc., and so contrived as to give as little disturbance to it as possible upon dressing; using the tailed bandage.

'*The wound soon digested kindly, and the cure was effected by the usual treatment, without any ill accident of consequence intervening, which favorable circumstance we ascribed to our precaution in removing the fragments and splinters of the bones, etc., at our first dressing.*

'In about three weeks, I was sensible, as were also several surgeons whom curiosity led to see so uncommon a case, that the substance which grew in the space of five inches, entirely void of bone, had acquired, in the middle only, a greater degree of solidity than flesh; which circumstance, not agreeing with the general received notion of the generation of callus, we proved, beyond dispute, with a sharp pointed instrument; and we observed

* As the plate merely represented the portion of tibia removed, five inches long, it was deemed unnecessary to copy it.

that the ossification was gradually formed from that central point, which was considerably advanced before any exfoliation was cast off the ends of the divided bones. In less than four months, the whole space was so well supplied with callus, or, rather, new bone, that he was able to raise his leg, when the bandage was off, without its bending. About a month after, he ventured, without my knowledge, to stand upon it, when he thought it had stability enough to bear an equal proportion of the weight of his body; and a little more than half a year after the accident, he walked pretty well, even without the assistance of a stick. *The leg is well shaped, not half an inch shorter than the other; and some years after the cure, he told me he could walk forty miles in a day without pain.*

'*In thirteen compound fractures, I have sawn off a considerable portion of the tibia, and succeeded in both old and young subjects.* This experience has given me fair opportunities of observing every day's progress in the generation of *callus;* and I always found it had the appearance, externally, of granulations of flesh, changing gradually into bone; concerning which wonderful operation of nature, I shall not attempt an explication, but this, the preceding, and following paragraphs, are the more worthy of notice, as the preservation of limbs may prove the consequence of their being well considered.

'*When the external wound happens to be small in a compound fracture, an ample dilatation of it at the*

very first dressing, is a point that demands particular attention; that any membranous structures, discoverable by gently introducing the finger, may be set at liberty by knife or scissors, and that coagula of blood, extraneous bodies, loose fragments, and splinters of bone, may be extracted before the parts grow tense, inflamed, and tender, in order to prevent the train of direful symptoms arising from irritation of the sensible parts, and should much of the whole substance of the bone protrude, sawing off a portion of it may hasten the cure, as well as give an opportunity of keeping the limb in a true direction.*

'By this kind of treatment, and such applications as are generally used in large lacerated wounds, in conjunction with a timely observance of a proper regimen, etc., *the formidable accidents, as violent pain, fever, inflammation, etc., may in a great measure be prevented, as I have good reason to believe, founded upon experience, with such success, as makes me think this method, which I have long pursued, cannot be too much inculcated.*'

* Case of compound fracture extracted from Benjamin Gooch's Cases and Practical Remarks in Surgery. Norwich, 1767.

'Many years ago, I was called to see a boy eight years of age, who, five days before, had received a fracture upon his leg, with a small wound, made by one end of the tibia passing through the skin, which ought to have been enlarged at first, and the end of the bone sawn off. The whole leg and thigh was now become emphysematous to a great degree; and this appearance extended even to the lower part of the abdomen on the same side. Incisions were forthwith made in different parts of both leg and thigh, whence air rushed out with an audible hissing noise, and the cellular membrane, which contained this rarified air, was mortified all the way, even where the skin was not so affected. Warm applications were made, and other proper measures taken, but to no purpose. The patient died two days after, in which time the emphysema approached almost to the navel.'

All the fractures, to which these cases refer, have occurred in the continuity of the bones, without involving the joints. It is to this class of fractures I shall especially confine myself; although I may speak of injuries of the joints for the purpose of illustration. They all appear to have been successfully treated, and there is no reason to believe they have been published as cures, while less fortunate cases, managed by the same authors, in a similar manner, have been suppressed. In my own practice, I assure you, there exists no unfortunate result to mar the satisfaction I experience in having abstained from amputating such limbs. Some of the cases here collected, particularly those of La Motte, have been severely criticised. Thus, Mr. Pott says,* 'That La Motte's patient escaped, I make no doubt, because he has said so; but the surgeon showed much more rashness in attempting to save such a limb, than he would have done in the amputation of it. The amputation would have been the more justifiable practice. I should be very sorry to be thought a patron or an adviser of rashness or cruelty; but in what I have here said, I believe I shall have every man in the profession who has either true humanity or sound judgment, founded on experience, on my side.'

But shall we not go on in such efforts, notwithstanding Mr. Pott's criticism, while experience shows us that similar accidents under the care of

* Sir James Earle's edition of Pott's works. Philadelphia, 1819. Vol 1, p. 266.

so many different surgeons, at different times and places, have terminated successfully? Will not the candid believe, that these cases should no longer be considered as mere exceptions to the sound principles of surgery, nor as examples of a single limb saved by sacrificing a dozen valuable lives on the altar of rash and unwarrantable experiment?* Will they not believe that the question ought to be raised, why so many apparently hopeless cases have done well? Why have not tetanus, mortification, irritative and traumatic fever more frequently occurred? or extensive abscesses, burrowing up and down the limb among the muscles, laying the bones bare, and producing hectic fever and colliquative diarrhœa? Will they not inquire why delirium, and severe pain and suffering, have had so little to do in most of these cases, while they so frequently occur, and even prove fatal, in other instances of even less apparent severity?

To bring the whole subject fairly under consideration, let us inquire what is the practice, and what the doctrines promulgated by the ablest surgeons, regarding the treatment of compound fractures. Let us examine these opinions, and compare them

* There can be no doubt but that some persons save their limbs contrary to the opinion of the faculty; but in most of these cases the limbs are useless, and for one saved under such circumstances, ten persons die.—*Guthrie on Gun-shot Wounds. Page* 54.

By a limb saved, I do not mean one with the wounds healed, having, nevertheless, the extremity contracted, bent, motionless, or otherwise useless: cases, which by a loose kind of phraseology, are often termed 'limbs saved.' The object of saving a limb is that it may be useful.—*Medico Chirurg. Trans. Vol* 23, *p.* 246. *Rutherford Allcock.*

with the opinions of surgeons of different times and places, and who practiced under different circumstances. In a particular manner let us look to results, and thence determine what course of treatment should be pursued, by ascertaining what results may reasonably be expected from following out one course of treatment or another.

In a severe case of compound fracture, the first question to be considered is, can the limb be saved and made useful? No one will doubt, that both duty and humanity require that amputation should be performed, whenever a member is carried away by cannon-shot; when so overrun by rail-road carriages, crushed by machinery, or by heavy bodies falling upon it, as to destroy the life of the part below the wound. Generally, however, the question is not so easily settled; but requires great care and circumspection in estimating the amount of the injury on the one hand, and the powers of nature on the other.

Yet, in deciding this most responsible question, the surgeon obtains but little aid from the rules or precepts laid down by systematic writers, even when he has time and opportunity to consult them. Baron Boyer, and in this he is supported by most other systematic writers, tells us,* 'It must depend upon the sagacity of the attending surgeon to decide if amputation be or be not necessary in

* C'est à la sagacité du chirurgien à décider la nécessité de l'amputation.—*Boyer Maladies des Os. Page* 54.

any given case.' This state of things grows out of the nature of the case. It is the surgeon in attendance, alone, who can know and appreciate all the circumstances bearing on this momentous question. It is for him to ascertain and determine, as precisely as possible, the extent of the injury to each and every tissue interested; to what extent such lesion may impede or endanger the vital actions of the broken parts themselves, or of those contiguous to, or dependent upon them for support. It is equally his duty to determine what parts may have escaped injury, and what are their powers of supporting life.

Having acquired this knowledge, it is for him, again, to estimate the powers of nature and of art in resisting and surmounting injuries, and in repairing their consequences. He should understand well the anatomy of the parts interested, and their functions; the circulation of the blood in the smaller arteries and capillaries, and the transmission of nervous influence; he should have studied well the laws of life in health and disease, the nature of inflammation and fever, their causes and effects.

He should be able accurately to estimate the influence of age, constitution, temperament, and all the conditions of life to which the patient may be exposed during the treatment. In a word, to a thorough knowledge of the principles of his

profession, surgical and medical,* must be superadded an acquaintance with the writings of the best authors on the subject, a knowledge of what able men have actually done in similar cases, and the means they have used. He must have enjoyed an opportunity of seeing these principles often tested in clinical practice, and possess a talent to learn by observation and reflection.

Fearful is the responsibility resting upon us, if we sit in judgment, without being properly qualified. We must not trust to precept alone; nor can genius, unaided by education, avail us. Surgical knowledge comes not by inspiration, nor by blindly following in the course of others.

All the circumstances of a given case having been duly considered, and amputation deemed indispensable, this most important question presents itself: shall such operation be performed immediately after the accident, or at some future time? Speaking on this subject, Mr. Bromfield,† an eminent English surgeon of the last century, says: 'As I would not mislead in the case of compound fractures, I therefore declare from experience, that when things are so circumstanced that the operation is unavoidable, the sooner it is

* Que la médecine pour le chirurgien, comme la chirurgie pour le médecin, ne seront jamais que la première des sciences accessoires. Ce fut là l'opinion constante de Desault, qui eût été, sans elle, moins grand chirurgien, par là même qu'il eût un peu plus brillé dans les sciences voisines de la sienne.—*Bichat Discours Prélim des Oeuvres de Desault. Page* 3.

† Vol. 1, page 44.

done, the greater will be the chance of saving the person's life.'

Again, Wiseman,* a man of great ability in his profession, and who had seen much service, both in naval, army, and civil practice, says: 'But it was counted a great shame to the chirurgeon, if that operation was left to be done the next day, when symptoms were upon the patient, and he spent with watchings, etc. Therefore you are to consider well the member, and if you have no probable hope of sanation, cut it off quickly, while the soldier is heated and in mettle. But if there be hopes of cure, proceed rationally to a right and methodical healing of such wounds.'

In several other places in his work, Wiseman cautions us against delay, and adduces examples of its danger and fatal results.

J. L. Petit speaks of the same advice being given him when a young man, (1693,) by a distinguished surgeon of his day, whom he consulted for a patient under his care.†

Ambrose Pare ‡ applies the same doctrine to the

* Vol. 2, page 176.

† Nous sortimes ensemble, et il me dit que, si pareilles blessures me tombaient entre les mains, il fallait couper la jambe, et ne point attendre que les symptomes m'y obligeassent. Je lui en démandai la raison. Il se contenta d'ajouter qu'il n'avoit sauvé de parielles malades qu'en faisant l'amputation, mais qu'elle ne réussissait que quand on la faisait sur le champs. Le lendemain le pied du malade fut presque gangréné. Je fis l'amputation, et le malade mourut cinq ou six jours après.—*J. L. Petit, Maladin Chirurg. Page* 803.

‡ The wound must forthwith be enlarged, unless the condition of the part resist, that so there may be free passage forth for the sanies, or matter, as also for such things as are farced, or other ways contained therein; such as are

dilatation of gun-shot wounds: and Le Dran announces his judgment in the following words. 'Whenever, in case of a gun-shot wound, the surgeon foresees the indispensable necessity of amputation, he should do it at once.'

While such was the opinion of these distinguished men, the French Royal Academy of Surgery, in the year 1754, proposed the following question for a medal:* 'In what cases is it necessary to perform amputation immediately, and in what to defer it?' The prize was awarded to M. Faure, a military surgeon, for an essay which maintained that amputation should only be performed after the subsidence of the first symptoms, and the establishment of suppuration. Faure based his opinions on the results which he had seen of early and deferred amputation, as practiced on the wounded after the great battle of Fontenoy, which took place, May 11th, 1745. He states these results to be, that scarcely thirty escaped after early amputation, out of more than three hundred operated on; while of ten, amputated after the first symptoms had subsided, all recovered.

Some time subsequently, John Hunter and O'Halloran, in England, embraced the same views.

pieces of their clothes, bombast, linnen, paper, pieces of maille or armour, bullets, haileshot, splinters of bone, bruised flesh, and the like: All which must be plucked forth with as much celerity and gentleness as may be. For presently after the receiving of the wound, the paine and inflammation are not so great as they will be within a short time after.—*Ambrose Paré. Page* 419.

* En quels cas il fallait faire l'amputation sur le champ, et en quels cas il fallait la différer.—*Prix de l' Academie de l' anné* 1754.

Hunter, in his work on Gun Shot wounds, speaking of early amputations, says, 'In general, surgeons have not endeavored to delay it till the patient has been housed, and put in the way of cure; and therefore it has been a common practice to amputate on the field of battle. Nothing can be more improper than this practice, for the following reasons; in such a situation, it is almost impossible for a surgeon, in many instances, to make himself sufficiently master of the case, so as to perform so capital an operation with propriety; and it admits of dispute, whether, at any time and in any place, amputation should be performed before the first inflammation is over. When a case is so violent as not to admit of a cure in any situation, it is a chance if the patient will be able to bear the consequent inflammation; therefore, in such a case, it might appear, at first sight, that the best practice would be to amputate at the very first. But if the patient is not able to support the inflammation arising from the accident, it is more than probable he would not be able to support the amputation and its consequences. On the other hand, if the case is such as will admit of being brought through the first inflammation, although not curable, we should certainly allow of it; for we may be assured that the patient will be better able to bear the second.'

Again, 'In the first case it is only inflammation; in the second it is inflammation, loss of substance,

and, most probably, loss of more blood; as it is to be supposed that a good deal has been lost by the accident, not to mention the awkward manner in which it must be done.'

In another place, 'experience is the best guide, and I believe it is universally allowed by those whom we are to esteem the best judges, those who have had opportunity of making comparative observations on men who have been wounded in the same battle, some, where amputation had been performed immediately, and others, where it had been left till all circumstances favoured the operation; it has been found, I say, that few did well who had their limbs cut off on the field of battle; while a much larger proportion have done well, in similar cases, who were allowed to go on till the first inflammation was over, and underwent amputation afterwards.'

Here we see Hunter* appeals to the experience of other military surgeons. To whom he alludes does not appear from the text; but it may

* Hunter became senior surgeon on the staff in 1760, went to Belle Isle and Portugal in 1761, and left the service in 1763. In the introduction to his treatise on inflammation and gun-shot wounds, he says that work was first arranged during the year 1762, being eight years after the award of the academy; a period well calculated to give to the opinions of Faure and of the academy, all the currency and influence usually exercised over public opinion by great reputation, sustained by the authority of powerful and learned associations of men of distinguished and acknowledged ability.

The short period of service here mentioned, together with the appeal of Hunter to the experience of other military surgeons, rather than his own, leaves but little doubt, that the views of Faure had too much influence over his mind, and that he did not give the subject all the attention and comparative examination which its importance deserved.—*See Life of Hunter prefixed to his works.*

be he refers either to Faure himself, or to those who had entertained his views.

When we remember that Hunter, in England, undoubtedly stood at the head of his profession, both in military and civil practice, that Faure enjoyed a high reputation from the great success which, he alleged, had crowned his efforts, that he was honored by the medal of the academy, and still more by the approbation, countenance and friendship of the distinguished surgeons who constituted that learned body; when two such men, under such circumstances, unite in recommending one course of practice as safe and proper, and at the same time tell us, that whenever that course is deviated from, the most disastrous consequences ensue; we cannot be surprised that their doctrines should exercise great influence over the opinions and the practice of the civilized world. Such has been the case here; and I believe I may state, that the practice of deferring amputation, when made necessary by casualty, until after the subsidence of the first symptoms, was enjoined upon the military surgeons of Europe, and generally approved by distinguished men in the civil exercise of the art, from the days of Faure to the time when, in France, Baron Larrey, and in England, Dr. Hennen and Mr. Guthrie, established the fact upon the fullest evidence, that both Faure and Hunter were in error, and that where amputation is necessary in consequence of gun-shot

wounds, and, I may add, of other casualties, such operation ought to be performed at once, or within twenty-four hours from the receipt of the injury; that when amputation is practiced before the access of the consecutive symptoms, it may be done with but little comparative danger; that when it is done after the appearance of such symptoms, and before suppuration is fully established, fever allayed, and the system restored, as it were, from its influence, the danger is urgent, and the result usually disastrous; finally, that if delayed until after all these symptoms have given way, swelling subsided, and suppuration has been established, a better chance of recovery may exist; but still, this chance is much less than if the operation had been done immediately, on the receipt of the injury.

In support of the propriety of immediate amputation, Baron Larrey adduces the testimony of Dubor, who stated, that during our revolution, the American surgeons performed amputation at once, and lost but few of their patients, while, among the French auxiliaries, the surgeons delayed it, in accordance with the doctrines of Faure, and lost a very large proportion of theirs.

He also mentions the testimony of Féroc * and

* ' Lors du combat naval du 13 Prairial, an. 11, (1er Juin, 1794,) il fut fait un grand nombre d'amputations l'instant après le coup. Soixante de ces amputés furent portés à l'hôpital de la marine, à Brest, et confiès aux soins de M. Duret. Deux seulment périrent du tetanos ; tous les autres furent guèris : l'un d'entre eux avait eu les deux bras amputés.'—*Larrey Chirurgie Militaire. Vol* 2, *p.* 489.

other naval surgeons, that out of sixty patients on whom amputations were performed in the French fleet immediately after the combat of June 1st, 1794, but two died, and that all the rest recovered; one having lost both arms.

Mascelet also states, that immediately after the naval battle in Aboukir bay, eleven amputations were performed, all successfully; while, at the hospital on shore, three operations were performed, seven or eight days after the battle, and that all the patients died, notwithstanding the best care.

To all this Baron Larrey * adds the evidence of his long and careful experience; he says, 'Faure assures us that hardly thirty escaped after the battle of Fontenoy, out of about three hundred who underwent early amputation, while in our practice, more than three quarters have been saved and some of them with the loss of two limbs.'

The doctrines above stated are confirmed both by Dr. Hennen and Mr. Guthrie, in their inestimable works on military surgery; they also adduce the opinions of other military surgeons in support of their own. They examine closely the doctrines of Hunter, and admit that they must be erroneous. Mr. Guthrie says that previous to the termination of the war of 1815, the opinions of Hunter on the powers and capabilities of the human consti-

* 'Faure nous apprend que sur trois cents amputations environ, faites après la bataille à Fontenoy, une trentaine seulement furent suivies de succès, tandis que nous avons sauvé plus de trois quarts de nos amputés, dont quelques-uns ont même perdu deux membres.'—*Larrey Chirurgie Militaire. Vol* 2, *page* 452.

tution were universally received. As general principles, they did little mischief; but when they came to be acted upon, the results were not found to coincide with the principles from which they were deduced, and I do not believe, says Mr. Guthrie, that at the close of the war in 1815, there was one naval or army surgeon in the British service, who would have delayed, until the second period, an amputation which was clearly indicated to be necessary, although there were a few, in the French army, who preferred operating after the first inflammatory symptoms had subsided. This was not the case in private life. Many of the surgeons, in London and other places, advocated the propriety of delay, and the opinions of Hunter, and taught to rising surgeons, doctrines which had been found wanting in practice, and which could not be too soon exploded.

I may here observe, and it is a point of the greatest importance in understanding the question at issue, that Baron Larrey, Mr. Guthrie, and Dr. Hennen, confine the period of time, proper for primary operations, to the first twenty-four hours after the infliction of the injury. Baron Larrey tells us,* 'When a limb has been so injured by

* 'Lorsqu'un membre blessé par un coup de feu ne peut être conservé, il faut l'amputer sur le champ. Les premières vingt quatre heures sont les seules heures de calme que conserve la nature, et dont il faut se hâter de profiter, comme dans toutes les maladies dangereuses pour administrer le remède necessaire.—Si l'on ne fait promptement l'opération, la douleur se manifeste, la fièvre s'allume, les fonctions sont dérangées successivement, l'irritation augmente, et il se déclare

gun-shot that it cannot be saved, we should amputate immediately. The first twenty-four hours are the only hours of quiet which nature enjoys. It is therefore during this favourable period that we should apply our remedies, in this, as in all dangerous diseases.'

In the sixth volume of the Memoirs of the French Academy of Surgery, page 118, we find the following excellent critique by Boucher upon the doctrines of Faure, written soon after the award of the academy. It is precisely the doctrine established by the experience of military surgeons of the present age. Boucher says,* 'Properly to discuss this important question, we should mark the different periods of time when amputation should be performed. And I will mention three. The first period, extending from the receipt of the injury to a short time before the

des mouvemens convulsifs. Si le malade ne succombe pas à ces premiers accidens, les solides, après avoir été distendus outre mesure, tombent dans une atonie complète ; ce qui produit dans le moignon la gangrène dont il est difficile de prévenir les suites funestes.'—*Larrey, Chirurgie Militaire. Vol.* 2, *page* 453, 455.

* Pour procéder avec ordre dans la discussion de cet objet important, il faut distinguer avant tout, les temps ou les divers périodes, dans lesquels l'amputation peut être pratiquée. J'en distingue trois.

Premièrement, le temps qui suit immédiatement le coup porté, et qui précède le développement des accidens. L'on sait que dans les plaies faites par armes à feu, la tension, le gonflement inflammatoire, les battemens, les douleurs vives, &c. qui en sont les suites ordinaires, n'ont pas lieu tout d'abord, et que ces symptomes tardent plus ou moins à se montrer selon la grandeur et la complication de la plaie a quoi contribue aussi le tempériment ou la constitution du blessé.

Secondement, le temps, ou les accidens plus ou moins dévelloppé, sont plus ou moins propres à affecter l'economie animale.

Troisièmement, le temps, ou les grands accidens ont réláchés de leur violence ou sont absolument calmés — Temps requis par M. Faure, pour operer avec avantage.—*Boucher Mémoires de l'Académie de Chirurg. Vol.* 6, *page* 118.

appearance of the inflammatory symptoms. The second commences with these symptoms and continues during their influence. The third commences when the symptoms have become much mitigated in their violence, or have wholly subsided; the period considered by Faure as the only proper time for amputation.'

In speaking of the symptoms resulting from wounds, and the period of their access, Boucher says, 'We well know that tension, inflammatory swelling, and pulsating pains, fever, etc., do not take place at first; but that the period of their access is more or less influenced by the extent and complication of the wound, and by the temperament and constitution of the patient.* Faure's system appears to be founded wholly upon the unfortunate results which follow amputation, practiced during the second period, when all the symptoms are developed, since he alleges that the little success, which followed primary operations, was owing to the fact, that they were done in a time of trouble and disorder; when the whole machine was, as it were, in a state of ardent fever.'

* Boucher here gives us a most important principle, which should be well observed in practice. Baron Larrey confines the time proper for amputation, to twenty-four hours after the injury; experience having convinced him that the inflammatory symptoms usually commenced within that time. It is probable, however, that in some instances, the symptoms may be delayed beyond this precise time. It is even more true, that, owing to the peculiar complication of some wounds, the severe symptoms commence at a much earlier time. In confirmation of this opinion, see Larrey Chirurgie Militaire, tom. II, page 260; case of Gen. Lanusse. See also the cases lettered A. B. C. annexed to this essay.

He also remarks, 'After the battle of Fontenoy,* there was such lack of surgeons, that but few of the wounded could receive proper care.' Thus it seems, that Faure did not confine his observations to the first period of Boucher and of Baron Larrey. We may reasonably infer, from an accurate examination of the opinions, both of Faure and of Hunter, either that they did not recognize this most important practical precept, or that they disregarded it in practice.

If this be the explanation, and I doubt not that it is, then it is established, that in the days of Faure and of Hunter, as well as in our own, and I doubt not the same will hold true as long as time lasts, neither amputation, nor other operation of surgery, can be performed on the human body, while suffering under inflammation and fever, without incurring the greatest danger. I have labored this point, gentlemen, extensively, and I fear tediously, not only because it is applicable to military surgery, but for the stronger reason, that it is equally applicable in civil practice; alike to the treatment of compound fractures, and to any operation which may be proposed while the human system is in a state unfavorable for its execution. If, then, amputation is not to be performed in a compound fracture, from the commencement of the second

* Smollett says this battle was fought with great carnage and obstinacy. At first the French were driven from their position, but regained the field and a complete victory. The Allies lost 12,000, the French nearly the same. The English left all their wounded to the mercy of the French. This fact and the time the battle lasted confirm the views of Boucher.

day after the injury, until suppuration has been established, does it not follow, by a parity of reasoning, that we should avoid, during the same period, all acts which may promote or aggravate inflammation? Does it not also follow, that every thing possible should be performed on the first day,* and that every act which can, in any way, excite or aggravate inflammation or irritation,†

* I cannot here refrain from warning the reader of the necessity of making all his arrangements with the greatest care and forethought. It is not sufficient that he knows how to remedy difficulties when they arrive; he must foresee and prevent them. The medical treatment is of great importance. Is blood to be taken? If so, from what part? When? and how much? Similar queries present themselves as to purging,* diaphoretics, and opiates. The articles selected for diet should be such as best tend, in conjunction with other means, to subdue fever and irritation; yet such as may be most nutrient, consistently with the foregoing condition. The patient's apartment should be quiet, free from noise and interruptions, and thoroughly ventilated, having a southern and pleasant prospect. Perfect cleanliness should be observed. The attendants should be intelligent, firm, and uncompromising to baneful indulgences; yet still more noted for kindness, cheerfulness, and sympathy for human suffering. Such apparatus only should be used, as may retain the parts in apposition, without giving pain. The transportation of the patient home, without injury, is of great importance. On this subject, see the Memoir of M. De La Faye, Mèm. De L'Acad. Vol. 6, page 1; and for a translation of the same paper, see J. Aitkin on Fractures, page 79. London, 1800. See also Baron Dupuytren, Leçons Orales.

'Hic tamen citra curationem notandum, primo, ut fiat extensio a chirurgo statim vocato, primâ, aut ad summum, secundâ die, priusquam scilicet, parti gravis superveniat inflammatio. Si Chirurgus opportunè non fuerit accersitus, sed tertiâ, quartâ aut quintâ die, in quibus inflammatio vel imminet vel coepit, tunc tentanda non est extensio, donec septem, vel paulo plures dies praeterierint.'—*Scultetus. Page* 90.

† 'Il y a long-temps qu'on a dit pour la première fois qu'on ne devoit negliger aucune precaution dans le traitement des maladies. L'omission d'une seule circonstance peut conduire a des resultats facheeux.'—*Baron Dupuytren Leçons Orales. Vol.* 5, *page* 9.

* 'Purgatio enim per alvum plerisque vulneribus prodest.'

should be most studiously * avoided during the intervening time preceding suppuration?

Is it not clear that all membranous structures, which, in consequence of the injury, have become so many bands, impeding or even arresting the circulation of blood, or the transmission of nervous influence, should be at once divided? Shall we in compliance with the rules of our art, remove from our bandages both hem and seam,† lest they irritate or cause ulceration of the skin, and at the same time suffer rough, angular, loose fragments of bone or other foreign bodies to remain within wounds to irritate, inflame, and endanger the vital ‡ structures they may lie in contact with?

Shall we any longer talk about the necessity of

* 'I am informed that amputation of the angular portions of fractured bones is not uncommon at the Leeds infirmary. Whether it has been attempted under such circumstances, and to such an extent as has been already detailed, I am not aware; as important facts are frequently buried within the walls of an hospital. I must acknowledge, however, that on speaking to the venerable Mr. Hey, on the bad consequences of compound fractures in London, he assured me that he was persuaded, that it was not so much from the foul air, as from not removing the sharp ends of bones, which irritated the muscles and became a constant source of tetanus, or of those extensive suppurations so often followed by death. He told me, by adopting this plan, his practice was very successful.'—*Mr. Dunn, Medico Chirurg. Transactions. Vol.* 12, *page* 176.

† 'Fasciae autem parantur ex linteis vetustis aliisque usibus ex parte attritis, ut sint tractabiliores, validis tamen, ne extentae lacerentur; nullas consutiones aut extantias habeant, ut æqualiter, ac sine dolore constringant.—*Scultetus, page* 83.

‡ 'Those fractures are most dangerous, which are made so deep in the fleshy parts, that your hands cannot well come at them to extract the loose bones, and place the others right * * * so also those fractures made by splinters are exceeding dangerous, they generally shattering the bone to pieces: In which case, the nerves, tendons, etc. are grievously pricked and torn, and are subject to extraordinary pain, inflammation, convulsions and death, unless immediate remedy be had by removing these bones, or by amputation of the member.'—*Wiseman, vol.* 2, *page* 174.

cleanliness, and busy ourselves with water, soap and sponge, in washing the external coverings of a broken limb, knowing full well at the time that this very limb is, within, full of all uncleanliness?

Shall we recognize any longer as a principle of our art, that in such cases, it is nature alone which has power, after weeks of suffering and danger, to relieve our patients, by removing the complication of their wounds, whence all their sufferings and danger come?

It is on the above principle that we may explain the not unfrequent occurrence of serious consequences, or even death, after operations, deemed trivial, when practiced on inflamed parts; such even as cutting corns and paring toenails. I fear this subject has not received the attention it deserves from the profession, in private practice, and that principles, which may be said now to be well re-established among military surgeons, are not duly appreciated either in the hospital or private practice of Europe or America.

To elucidate this point, I will mention a single case which came under my knowledge some twenty years since. An industrious middle-aged man,* foreman of a distillery, residing in a neighboring town, had been afflicted a long time with a corn on each foot, over the joint of the little toe and its metatarsal bone. On each foot, the corn had caused ulceration into the joint. The bones

* The late Mr. Burrage of Medford.

were carious, and the patient suffered much from lameness. To obtain relief, a surgeon was consulted, who recommended the removal of the little toe and a portion of its metatarsal bone; but he added it could be safely done, only after the patient had confined himself to a recumbent posture, appropriate diet and regimen, with such medicine as might be needed to subdue all inflammation, swelling and tenderness. This course was adopted, and the toe, which had given the greatest pain, removed at the proper time. No bad symptom ensued; cicatrization took place in a reasonable time, and the patient then regretted that both feet had not been served alike. On returning to his labors, the man experienced so much relief from the operation, and so much pain from the remaining toe, that he determined to lose that also. He again applied to the same surgeon, but declined wasting, as he termed it, so much time in preparation. He said there was almost no pain in the part, except when he walked; that it was very different from the other, and that now he must have his own way. Finding his surgeon inexorable, he applied to another, who entertained no such scruples. The operation was done expertly and quickly, but it caused great suffering in its execution. Within a few hours, there ensued most agonizing pains. Opium was resorted to, but without relief; the patient became delirious, agitated, and sleepless.

The wound assumed a bad appearance, soon mortified, and death was the result.

In considering those cases that heal without suppuration, it may be well to inquire how far fortunate results are dependent on treatment, and how far on peculiar complications.

Sir James Earle, in a note to his edition of Pott's treatise on compound fractures, considers all the aggravated symptoms as dependent upon the admission of air into the wound, among the fractured bones. In support of this opinion, he reasons from analogy, and says that large extravasations of blood may remain harmless, and that psoas abscesses may exist for a long time, and increase to great size, without producing trouble to the system; but hectic fever and other grave symptoms supervene as soon as an opening is made and air admitted. But it may be well questioned if the analogy holds good in compound fractures. These views are certainly not sustained by the cases collected and hereto annexed, as neither hectic fever, inflammation of a grave character, or severe pain, or nervous symptoms have occurred in either of them, where the wound was at once sufficiently open, drained of liquid discharges, and freed from all foreign bodies: while severe symptoms have attended some of the other cases, where these precautions have not been sufficiently regarded: yet here, on several occasions,

the severe symptoms * vanished, as soon as the needful treatment was adopted.

I will only add, that I have, on many occasions, known compound fractures heal readily as by first intention; but this result has been obtained only in cases where the wound has been inflicted on the bones and muscles, without splintering, or other important complication; while the severest symptoms have followed such fractures as have occurred in tendinous and membranous parts, where the bone was much splintered, and the skin but little broken. Most English and American surgeons, however, have adopted the views of Sir James Earle, and have endeavored to convert compound into simple fractures, by closing the wound by means of adhesive plaster and bandage, in the hope of healing by first intention.

Now although there may be but little objection to gently drawing the lips of the wound together by adhesive plaster, in the simpler kinds of compound fractures, I mean such as are compound by definition, not by complication, yet I apprehend much mischief may flow from the practice, if extended to the more complicated forms of fractures, especially when, in addition, graduated compresses and bandages are made use of to prevent the undue

* In support of the opinion, that air may be freely admitted to the cavity of compound fractures without injury, see case No. 7. See also, the cases lettered D. E. F. G. These cases and No. 6 also illustrate the value of draining all fluids from the wound, at the commencement, and during the whole course of treatment.

rising of the bone.* Under such treatment I doubt not that inflammation and sloughing have often been attributed to the original injury, which would never have existed, had it not been for undue constriction over the wound.

Closing here our remarks on the cases in which amputation has been pointed out as the appropriate remedy, and on those which are so little complicated, that they may be healed with little or no suppuration, and without inducing aggravated or dangerous symptoms, let us consider those intermediate cases, where alone the question of dilatation, and the extraction of foreign bodies, properly arises.

In the commencement of this investigation, the inquiring mind is struck by the fact, at once curious and instructive, that the older surgeons, both English and French, the Parés, the Wisemans, the Petits, the Bromfields, the Le Drans, and the Bouchers, agree in recommending immediate action, both as applied to amputation, the dilatation of wounds, and the extraction of foreign bodies therefrom, whenever such cases were so complicated as to render such proceedings necessary. And it appears that their doctrines and practice

* On doit éviter les bandages unissants tels que la capeline, et autres semblables ; ils gènent et fatiguent les parties, en s' opposant à l' éngorgement favorable et nécessaire pour produire une bonne suppuration.—*Larrey. Vol.* 2, *Chirurgie Militaire, page* 481.

Fasciæ etiam minus stringuntur, quam in fractura sine vulnere, ne compresso vulnere, dolor et inflammatio oriantur.—*Scultetus. Page* 90.

were recognized as correct, and followed, up to the time of Faure and of Hunter; that since that time, the opposite principles and practice, as taught by the two last mentioned writers, have been established, both in military and civil surgery, and, except so far as before pointed out, in regard to the time of performing amputation, continue to this day to be generally regarded as correct.

The older surgeons * above cited, allege that severe and dangerous symptoms supervene in wounds complicated with broken bones, unless tension be prevented or removed by incisions, and foreign bodies extracted, before the commencement of inflammation; and that these symptoms are dependent upon the complication of the wound † and may be relieved, controlled, or even prevented by appropriate and seasonable treatment. Baron Larrey embraces the same views, and Dr. Hennen

* As long as there is any strange body or different substance to keep off the unition, you must not hope to make any cure of the wound.—*Wiseman, vol.* 2, *page* 43.

Wiseman, vol. 2, page 158, having advised immediate extraction of all foreign bodies, says in the succeeding paragraph:

'In the Armado naval of Dunkirk, where the chirurgeons were oft employed in this kind of work, we, after every fight, went together, visiting one another's wounded men. It was thought amongst us a great shame, if any thing of this work of extraction were then to be done: For after the first and second day, the wound proveth tumefied, also the neighbouring parts are inflamed, and so changed in their temper, that they conceal from your sight both the bullet and his companions, so that the place they are caught in can hardly be known; Or, being discovered, you can not, without hazard of your patient, or great trouble of the part, make extraction of them. In which case, it may then be reasonable to defer that work, and by lenients to hasten digestion.'

† See case No. 18, as exemplifying cause and effect between dilatation and relief of the severest symptoms.

and Mr. Guthrie base their doctrines of immediate amputation upon the same principles. They all appeal to experience and cite many cases confirming the doctrine. On the other hand, Faure and Hunter appeal to their experience, and to that of others, to prove the success of treatment diametrically opposite. How, then, are we to reconcile this difference of opinion with regard to matters of fact? No one will believe that either Faure or Hunter would deceive themselves or willingly mislead others. Some mistake must obviously have existed, and I have already adduced the authority of Boucher, proving, as it seems to me, that Faure actually did fall into the error of confounding the first and second periods of Boucher and of Larrey. Consequently, all his deductions fall to the ground, as they in no wise militate with the views of the opposing party. We are therefore compelled to believe, that the error lies in not understanding, or in disregarding the principles so clearly laid down, above, on this subject, and we realize, with painful emotions, how much more creditable it had been for science, as well as fortunate for humanity, if both Faure and the members of the Academy had studied and appreciated the criticisms of Boucher, and governed themselves by his wisdom. Nor is it less certain, that Hunter fell into the same error: his writings contain strong internal evidence of this fact. He insists that patients should be housed and put in a

way of cure, before any operation is performed; thus causing delay and wasting most valuable time. He says, 'that the extraneous bodies do not come out from wounds, at first, so readily as they do at last, because the inflammation and tumefaction, which extend beyond that very opening, keep them in:' thus showing, conclusively, that he speaks of wounds only when inflammation and tumefaction have already supervened, and when the favorable moment for action has passed by. In another place, he considers tension and inflammation as the consequences* of wounds, and that dilatation must increase them both, inasmuch as it extends the original wound. Hunter, and Pott, and Abernethy, speak much of the injury arising from any effort to remove foreign bodies, or fragments of bone, except such as are loose and superficial, until after suppuration has been established; thus showing, that they speak only of the case during the second period, the period of inflammation. They object even to the use of probes, as a violence offered to the parts, and neither recommend early dilatation for the purpose

* A reason given for opening gun-shot wounds is, that it takes off the tension arising from the inflammation, and gives the part liberty; this would be very good practice, if tension or inflammation were not a consequence of wounds; or it would be very good practice, if they could prove that the effects from dilating a part that was already wounded, were very different, if not quite the reverse of those of the first wound, but as this must always be considered as an extension of the first mischief, we must suppose it to produce an increase of the effects arising from that mischief: Therefore this practice is contradictory to common sense and common observation.—*Hunter on Gun Shot wounds.*

of draining,* or of preventing, or relieving, tension, or for the removal of foreign † bodies; nor do they in any way mention, or allude to, the reasons assigned by the older writers, for urging these important and necessary operations;‡ much less do they meet their arguments and show them to be fallacious.

* The English custom of healing wounds in general by the first intention, as well as Hunter's doctrine of the vitality of the blood, and its power of becoming organized, together with his views of the bland and inoffensive nature of pus, have all, I doubt not, tended, in common with the views of Sir James Earle, to establish the practice here alluded to. Consequently, the deleterious influence, on health, of matter being retained and burrowing among the soft parts, and the danger of purulent absorption or infection, have, till within a few years past, been too much overlooked, or disregarded. As illustrative of the baneful influence of matter so retained, I have placed, in the appendix, one case from the works of Ambrose Paré, lettered G, and one of my own, lettered F. I likewise make the following quotation from Tulpius, to show that physicians, as well as surgeons, of his day, agree on this subject: 'Sed in diutinâ suppuratione, languet, vel potiùs emoritur tantoperè, vis expultrix: Ut multo facilius expellat onus suum, perviam declivem quam sublimem. * * * * Dirige itaque cursum tuum, o Medice, per lineas hic signatas: Et excipe gratè quod praefertur lumen: Sed seca maturè constantibus viribus, et integris visceribus: Alias educes quidem pus vel cruorem: Sed neutiquam ex periculo aegrum.'—Nicholai Tulpii Observationes medicæ Editio Quinta Lib 2, Caput 5, Lugduni Batavorum 1716.

† Mr. Abernethy, in his lectures, says, when speaking of compound fractures much comminuted, 'I do not see what advantage can be derived from picking away the smaller pieces of bone. The only mode in which the fracture can unite is by the separate pieces of bone becoming vascular, and the probability appears to me that they will become more so, when the pieces are small, than when they are very large. If there should be any projecting, detached pieces of bone which appear very much to disturb the proper position of the fracture, you should take them away; but you must be much guided by circumstances: if you can replace the different pieces of bone, and by giving the part a moderate degree of support, retain them there, I think you had better not take them away.'

‡ 'There still prevails, among foreign surgeons, and particularly the French, a strong prejudice in favor of the immediate scarification or dilatation of all gun-shot wounds. This practice originated in the idea, that the wounds were poisoned: to allow, therefore, of a free discharge of the poison, and to admit of the more ready application of antidotes, was a leading indication. To change the figure of the wound was also another object; for the older surgeons had observed, that the more malignant and obstinate ulcers were of a circular form. But the employment of scarifications had its opponents, and was reprobated by Leonardus Botullus, one

All that they say of the bad effects of early operations on broken limbs, has been recognized as true when applied to such operations performed during inflammation,* both by the older surgeons and by the military surgeons of the present day; and we can account for the fact, that but one in ten escaped under the care of Faure, and that under that of Hunter, but few recovered, who underwent early

of the most judicious of the older surgeons. Our own Hunter, between whose opinions and those of Botullus there is a very remarkable coincidence, has contributed very much to show the inutility of the practice. And among English surgeons, the knife is now rarely, if ever, employed in the first instance, except for the purpose of extracting balls, or splinters of bone, and other extraneous bodies; or for facilitating the application of ligatures to bleeding vessels.'—*Hennen. Page* 60.

* The idea here advanced, by Hunter, that tension is the consequence of wounds, and increased by dilatation, must be considered as remarkable. An abscess, forming beneath the fascia of the palm, is attended with great pain, throbbing and fever, even when the quantity of matter is small. Here, say we, is tension. We cut at once through the firm, unyielding textures, and let out the matter. Our patient is relieved and his hand recovers its full powers. If this be not done, the matter burrows downward and upward, even through the annular ligament, or perforates the hand, and there finds an insufficient outlet, and the hand often becomes crippled for life. In parts not covered by membranous tissues, much greater suppurations occur without acute or pulsating pain or fever. Hence is it clear, that tension is only the secondary effect; in other words, depends on complication. Why should not this doctrine and practice be applied in treating compound fractures? All wounds, in order to heal, must inflame and swell, to a certain degree. It is inordinate swelling, only, which requires the interference of surgery. The absence, or the entire subsidence, of swelling, on the third day, or at any subsequent time, before suppuration, even when unattended by other bad symptoms, indicates great danger. Witness the following history, viz: 'A person having been shot in the arm, and the wound undigested, I being consulted, advised the laying open of the wound, and the extraction of the bullet, rags, &c., but was overruled by others, and it was deferred to farther consideration. Two days after, I visited the patient, and asked the chirurgeon whether he had laid open the wound? He replied there was no need, for he could turn his finger in it, and pull out the bullet and rags if it was necessary. As I was going out of the house, I met the physician, who, inquiring of me the patient's health, I replied that the chirurgeon had unwittingly given me the certain sign of his death. For, 'In magnis vulneribus et parvis, si tumores non appareant, ingens malum.'—*Richard Wiseman. Vol.* 2. *Page* 213.

amputation, only upon the supposition, that both these distinguished men had fallen into the unfortunate mistake we have attributed to them.

Thus bitter and fatal are the fruits of error in our profession, and thus are illustrated the truth and pertinency of the language of Bichat, applied to the merits of Desault, who says, 'We can appreciate the merits of great men only after the lapse of time. It is time alone which can separate the valuable truths they have taught, from the errors which have escaped them. Whoever would accurately estimate their merits, must examine their works in an age subsequent to that in which they have lived.'*

By comparing the results obtained under these two opposite modes of practice, we find the picture by no means flattering on the side of Hunter and his followers. As evidence of the fact, I offer you an abstract of several clinical lectures delivered by Mr. Guthrie,† in London, during the winter of 1837-38.

In beginning, he assumes that compound fractures, whether caused by gunshot, or by heavy bodies crushing a limb with its bones, are nearly similar, and require nearly similar treatment.

'* Tel est en effet le sort des savans; leur merite ne s'epure q'au creuset du temps, les verités qu'ils ont tracés, ne s'isolent qu'en s'eloignant de nous, des erreurs qui leur sont echappées. Qui veut bien les voir, doit se placer toujours dans la posterité.'—*Bichât, Eloge de Desault, Page* 2.

† See Appendix to Johnson's Medico Chirurg. Review for April, 1838, and compare it with the authors mentioned in this essay. See Extracts, Letters, H. J. K. L.

With Hunter, he objects to dilating the wound, at first, although he says it must be done at a later period. He says, when suppuration is fully established, the splinters may be very gently sought after and removed. Again, he says, it must be borne in mind, that the pieces of bone cannot all be removed at once, or at the first, or at succeeding examinations; and as they cannot come away of themselves, except they are small, incisions must be made for their removal, and before any quantity of new bone can be formed around them. Mr. Guthrie considers the danger of dead pieces of bone, being inclosed by new formed ossific matter, as very great, and he exhibited to his class several morbid specimens, which had so annoyed the lives of his patients, that they obtained relief only by amputation, or death.* To prevent this state of things, he directs that as soon as it can be ascertained, by passing a probe through a hole in the new forming bone, that a portion of dead bone is so imprisoned, we should cut down upon the part and remove it by the chisel.

Such operations, he says, cannot be all done at once, but only in successive times, as evidence of the imprisoned condition of the bone may be obtained.

Here let us remark, that the time pointed out by Mr. Guthrie for the performance of these operations, is the period when the soft parts are tumid from preceding inflammation: when they are so massed

* See Authorities lettered H. J. L.

together that we can with difficulty recognize the several tissues; and when it would seem that nature should not be interrupted while she needs all her powers, aided by the skill of the surgeon, to complete the restorative process.

Again, it would be difficult to assign a reason, why these important and necessary operations should be delayed to so late a period, since Mr. Guthrie recognizes the necessity of amputating before the access of inflammatory symptoms, for reasons as applicable in the one case as they are in the other.

In Benjamin Bell's System of Surgery, well known, until a few years since, as a textbook for students, we find the following remarkable paragraph.

'From the difficult treatment and uncertain event of compound fractures, practitioners have been very universally disposed to consider the amputation of the fractured limb as necessary.'

And Sir James Earle * tells us, that the surgeons of London, who attended on Mr. Pott for a compound fracture, had actually decided upon the necessity of amputating his leg. That he, (Mr. P.) had given his consent to such proceeding, that the instruments and dressings were actually got in readiness, and that this cruel operation was prevented only by the fortunate arrival of Mr. Nourse, who thought the leg might be saved. Mr. Pott's

* See life of Pott, prefixed to his works.

fracture healed by the first intention, and Sir James would have us believe, that this fortunate result depended upon the oblique course of the bone through the integuments, and the exclusion of air from the cavity of the wound.

But I fancy, gentlemen, you will assign a very different cause for this result; and I trust no fellow of this society will have occasion to regret having advised amputation for the cure of a fracture, so little complicated as to admit of reunion by first intention.

According to Mr. Pott, the great objects of fear and apprehension in a compound fracture are pain, irritation, and inflammation. That these are to be avoided, prevented, and appeased by all possible means, let every thing else be as it may. In these views Mr. Pott agrees perfectly with the older surgeons. On both sides, therefore, is it admitted, that such symptoms indicate great danger, and that the patient's safety requires that they should be promptly relieved. As to the cause of the aggravated symptoms, however, Mr. Pott differs from the older writers, and attributes their existence to the original injury, or to faulty treatment on the part of the surgeon, and not to complication. True to this bias, he resorts only to antiphlogistic remedies for their removal.

But, according to his own account, his success is by no means great; as he says of compound fractures which do not heal by first intention, they

are attended with high inflammation, multiplied abscesses, and large suppurations, demanding all the surgeon's care and skill, and even then sometimes ending in the loss of limb, of life, or of both; or that all our efforts prove fruitless from the beginning, and that gangrene and mortification are the inevitable consequences of the accident.

Now if the extent of the injury be the true measure of danger, in compound fractures; if the surgeons of London can in any way be excused for the opinion given in Mr. Pott's case; or Benjamin Bell's advice be sustained: or if Mr. Pott's opinions be founded on pathological truth — then should it follow, that no one of the cases, which I have the honor to lay before the society this day, could have been brought to a successful issue.

Yet have they all recovered. Mr. Pott and others may say they are exceptions to the sound principles of surgery; but if we examine carefully, we shall find, that the very extent of the wound has prevented tension in the circumference of the limb, by dividing the membranous fasciae which might otherwise have produced it; that the shortening of the bone, by loss of substance, has prevented tension in the direction of the length of the limb, by the relief it has given to the muscles, when suffering under inflammation or engorgement, or from infiltration of blood or other fluids into their textures; that the open state of the wound has also provided a free draining of all fluids, and thus prevented the

lodgment of pus and the formation of burrowing abscesses; and that the extraction of all the foreign bodies, fragments, and shivers of bone, have ensured freedom from pain and other aggravated symptoms, by removing the complications on which such symptoms alone depend.

It was my intention, gentlemen, originally, to consider each of the precepts at first alluded to, separately; to lay before you more fully the arguments adduced by the older surgeons in support of their opinions, and to cite more extensively from their works, cases, proving their opinions to have been practically correct. I also intended to discuss the subject of bandaging, and to compare the effects of too tight binding with those of tension in the circumference of the limb, hoping, thereby, to put the profession on their guard against what, I doubt not, has been a fruitful source of ill success in the treatment of compound fractures. I meant, likewise, to consider the injury of blood-vessels and nerves, and to pass in review the principles and practice advocated, in this particular, by White, Gooch, Delpêch, and Dupuytren, and to bring out in relief, if I were able, the very lucid and invaluable observations of Mr. Guthrie on this subject, which are to be found in his treatise on the Arteries. Lastly, I intended to allude to the great number of cases of compound dislocation of the ankle, (cured without amputation, particularly when part of the bones have been removed,) to be found, scattered

here and there through the annals of surgical literature, and, in a particular manner, to notice the papers of the late Mr. Henry Earle, and of Mr. Rutherford Allcock, in the Medico Chirurgical Transactions, and to have compared the cases here collected, and the doctrines here advanced, with the doctrines and practice inculcated by the invaluable treatise of the late Sir Astley Cooper, on fractures and dislocations of the joints. But as that treatise is now in the hands of every Fellow of this Society; as the great truths therein contained, are given in language so graphic and plain, that 'he that runs may read;' and as nothing therein contained, can, in the present state of our knowledge, be altered for the better, I will only ask of the Society to compare, at their leisure, the doctrines of the one with those of the other, and determine if the work of Sir Astley does not confirm the views here advocated.

But I find I have neither the time nor the ability to do justice to this important theme. I will, therefore, here close, referring you to the works of these great masters of our art, where you will find the subjects ably and candidly discussed; and the appropriate practice accurately described and clearly pointed out. And I trust, when you shall have either formed or renewed an acquaintance with Paré, with Wiseman, with Petit, with Gooch, with Martiniere, with La Motte, with Bordenhave, with Percy, and Cannac, you will readily lend your aid

in rescuing and in preserving their names, their merits, and the truths they have uttered, from being buried and lost, beneath the lumber of the thousand volumes, which a prolific and undiscriminating press is now heaping upon them.

And now, gentlemen, let me congratulate you on the return of this our anniversary; on the high attainments of the profession throughout our happy land; on the manner in which these attainments are appreciated and requited by a liberal and enlightened public; on the joy we feel in knowing, that every county throughout our extended Commonwealth, is here represented by talents and acquirements, which would do honor to the medical standing of any community. Here, then, let us exchange congratulations. Under the auspices of the gifted author of the dissertation on Self-limited diseases, let us devote a part of the day to social enjoyment, pledging ourselves to each other, with renewed zeal and energy, to continue and increase our efforts in promoting the cause of medical science, philanthropy, and the public good.

Let me remind you, gentlemen, that since our last meeting, sixteen of our number have been removed by death. Let us mingle the tear of sympathy with the friends and kindred of the deceased. Upon us devolve the duties they have so worthily discharged; to us, also, have they left the pleasures, the fleeting pleasures of life. While we enjoy the one, and strive faithfully to discharge the other, let

us acknowledge, appreciate, and honor the virtues they possessed. They have been taken from us; some in the vigor of life, most of them, however, in the maturity of years. They have been stricken from the tree of life, never again, in this world, to be reunited to the parent stock. Yet are they not wholly dead. Dust unto dust. But let us indulge the hope, that what once animated this dust, is now ripening into the rich fruit of infinite existence, knowledge, and happiness.

OBITUARY.

The following members of the Society have died since the last Annual Meeting.

1844.		Entered the Society.	Age.
Oct. 2,	Friedrick Hartmann, Boston,	1842,	30
Nov. 5,	†Joseph Sampson, Brewster,	1817,	60
"	†Isaac Hurd, Concord,	1798,	88
" 24,	†John Bartlett, Roxbury,	1798,	84
Dec. 2,	†Abishai Howard, Sturbridge,	1825,	77
" 13,	Edward Bradstreet, Beverly,	1838,	31
1845.			
Feb. 13,	†Gridley Thaxter, Abington,	1809,	89
Feb. 27,	†Samuel Adams, Cincinnati, Ohio,	1803,	78
Mar.	Joel Burnet, Southborough,	1836,	46
" 9,	†John Scammel, Bellingham,	1811,	83
" 30,	Samuel Young, Harvard,	1813,	64
April,	Edward L. Coffin, Lynn,	1825,	50
"	John Hastings, Hatfield,	1813,	80
"	Stephen H. Wardwell, Hardwick,	1839,	57
May 12,	Benjamin Parker, Bradford,	1810,	85
" 16,	Patrick Kearnay, Boston,	1843,	40

HONORARY MEMBER.

		Elected.	
April 10,	Thomas Sewall, Washington, D. C.	1836,	59

† Retired Members.

CASES

OF

COMPOUND AND COMPLICATED FRACTURES.*

CASE I.

In the autumn of the year 1831, Benjamin Franklin, son of Mr. Gilbert Haven of Malden, of a scrofulous constitution, aged between five and six years, met with the following severe accident. While playing in a mill, his clothes became entangled in a horizontal axis which formed part of the machinery. By the successive revolutions of this shaft, his apron, arms, and body, were quickly wound about it; in which situation he remained, revolving with great rapidity, until the workmen had time to stop the motion of the mill. When first removed from the shaft, life seemed extinct; but the patient soon showed signs of reviving.

A short time after the accident, I saw him, in consultation with Dr. Buck, whose patient he was. The radius and ulna of the left side were fractured, from the elbow to the wrist, into a great number of small fragments, none of which, however, perforated the skin. The right humerus had sustained a comminuted

* The cases numbered from 1 to 23 serve as a basis for the foregoing essay; and the cases and authorities lettered from A to L illustrate the principles to which they severally refer.

fracture, extending nearly from the elbow to the shoulder-joint; the skin, cellular membrane, and muscles, were so torn and lacerated, as to allow the finger to be passed through the limb in almost any situation, from the head of the humerus to near the elbow; and I can describe the appearance presented in no better language than that used by the workman who came to the patient's aid: he said the limb appeared 'like a skein of coarse yarn,' as he unwound it from the machinery. Notwithstanding the extent and severity of the injury, the trunks of the arteries, veins, and nerves were not divided.

Our first object was to free the wound of loose fragments and shivers of bone. When this was accomplished, we judged that at least half of the entire length of the humerus was taken away. The parts were then brought into apposition, and dressed very lightly. Two tin splints, well padded, and made in the following manner, were made use of: the first, designed for the posterior part of the upper and forearm, was formed of two pieces, united at an obtuse angle by means of solder, and concave transversely; the second, intended for the anterior part of the limb, corresponded to its fellow, except that the concavity was upon the lower, instead of upper side, when applied to the arm. These might be well figured on a large scale, by a portion of common stove-funnel, cut longitudinally, and the pieces bent in their centre at an obtuse angle, their relative position being still maintained.

The left forearm was dressed in the common manner with an external and internal splint. The patient was placed in bed, both arms being supported by slings and resting on soft pillows.

Such was the treatment. This case was attended by no unpleasant symptoms, during the whole course of treatment. In three months, the bone had united, and the soft parts nearly healed, so that the patient was allowed to walk about, with his arm in a sling. At this time, he met with a fall, by which the humerus was again fractured. The same treatment was resorted to, but the wound did not heal until nearly eight months from the original injury, and after about half an inch of the entire shaft of the humerus had exfoliated. At the end of this time, the arm was but little shorter than the other. He enjoyed the free use of both

arms until his death, which took place about seven years after the accident.

Note. On showing this manuscript to the parents of this lad, I learned that all his limbs became weak and ulcerated from scrofula for some time before his death, but that the fractured arm was not more affected than the others. In all other particulars they consider the account correct.

W. J. W.

CASE II.

On the twenty-third day of June, 1833, I was called to see, in consultation with Dr. Whittemore, of Brighton, Eliza A., daughter of Stephen Bennett, aged four years, who had just suffered a compound fracture of the humerus, produced by a heavy horse treading on the arm while she lay prostrate on the ground. We found the bone broken transversely across, one and a half inches above the elbow joint. The skin was so lacerated, that the wound extended obliquely nearly round the limb, as there remained entire only a portion, about one and a half inches wide, uniting the integuments of the arm with those of the fore-arm. This portion of skin was situated just in front of the inner condyle. The whole mass of extensor muscles, excepting a small portion near the inner condyle, was divided. The torn skin was stripped down over the elbow some little way; both fragments of the humerus protruded from the back part of the arm, while the bundle of large blood vessels enveloped in their sheaths, and perhaps a little cellular membrane, lay in front entirely insulated from other parts, the distance of about two inches. We first washed and thoroughly cleansed the wound of all foreign substances. We next brought the parts in apposition, as nearly as we could in their natural relation one to the other, and so maintained them by a few points of suture, and the same mechanical means used and described in the case of B. F. Haven. Under the judicious care of Dr. Whittemore, this case was brought to a speedy and happy termination, without the occurrence of any un-

toward symptom. A few months since, I called on this young lady, and found her in the full enjoyment of sound health and a perfect limb. W. J. W.

CASE III.

On the seventh of October, 1839, I was called to see William Tyler, ship-carpenter, residing in Brighton Street, Boston, of large stature, and weighing more than two hundred pounds, who had fallen from a scaffolding to the ground, a distance of twenty-five feet. He alighted in a perfectly erect posture, thereby producing a compound fracture of the left leg. When first seen, there was a large, lacerated wound, about midway between the foot and knee, and, lying across this wound in a transverse position, was a piece of bone which had constituted three inches of the entire shaft of the tibia, but now detached and terminating in ragged angular extremities, which made its length from point to point about five inches. These pointed extremities were deeply imbedded in the soft parts, and the limb being shortened, the broken ends of the upper and lower portions of the tibia crowded and bore upon the transverse fragment, so binding it in its unnatural situation, that considerable extension of the limb was required to enable me to detach and set free one of the pointed extremities. I now found the fragment had strong adhesions with the interosseous ligament and with some muscular structures. These adhesions were carefully divided by the knife, and the fragment happily removed without hemorrhage. The Fibula was broken across near its middle, and its fractured ends could be plainly distinguished, over-lapping each other. There was an appearance of contusion about the wound, and in the cavity of the wound and its neighborhood was considerable infiltration of blood; there had however been but little bleeding.

The dressings for the limb were arranged by spreading out smoothly for a splint-cloth, a piece of stout cotton, four and a half feet long, and in width, the length of the limb. Upon the middle of this were laid, longitudinally, strips of partly-worn cotton, each four inches wide, and in length a circumference and half of the

limb. These strips were placed one upon another; thus, the first and upper, which was to be under the knee, being overlapped one half of its width by the next below, and this in like manner by the second, this second by the third, and so on, a sufficient number of strips being used to afford a covering for the whole limb.

The patient was placed upon a bed consisting of two hair matresses, one lying upon the other, made perfectly even and horizontal; and under the head was a single pillow. The leg having been shaved, and all foreign matters removed, the wound was filled with pledgets of lint smeared with mild ointment, and the limb then laid upon a pillow, having spread out on its upper surface the dressings already arranged. The strips of cotton having been previously moistened with cold water were smoothly applied around the limb; the strip last laid upon the splint-cloth being first brought somewhat loosely around and about the foot and ankle, the ends permitted to cross and thus be retained in place. The remaining strips were similarly adjusted up the course of the leg in succession, till the entire limb was covered, from the foot to the knee. The moistened strips were applied so that they might exert an equable though slight pressure upon every part, without, however, causing swelling of the foot or ankle.

Two splints of soft wood, each six inches wide, one eighth of an inch thick, and of sufficient length to extend from above the knee some way below the foot, had, in the mean time, been prepared, and soaked in warm water to render them pliant. These were next accurately adapted to the limb, by enveloping each, somewhat angularly, in opposite ends of the splint-cloth, and rolling them over therein, till, after several trials, they were at length brought to lie close along the sides of the leg, and produce a slight stretching of the splint-cloth below and between them. Owing to the great size of the calf of the leg, the direction of the splints, when adjusted, was far from parallel; the ends at the foot being much nearer together than those at the knee. Carded cotton was next introduced freely but gently between the splints and limb, to fill up any inequalities there might be between them, and enable the splints to bear and press everywhere alike. The dressings were retained in their proper position by three elastic liga-

tures, each one inch wide, and long enough, when doubled upon itself, to be fastened in a bow-tie, after passing entirely around the limb and its investments. One of these ligatures was just below the knee, a second immediately above the ankle, and the third between these two, as high up the leg as possible, without pressing upon the calf.

In the process of cure, the dressings were modified as circumstances seemed to require. There were not, at any time, severe nervous or febrile symptoms. The wound granulated and was filled up without exfoliation of bone or deposit of pus. After the cicatrization was complete, the left leg was found to be two inches shorter than the right. At the end of three months, the patient began to use his limb in moving about, and has recovered with a good leg. W. J. W.

CASE IV.

On the fourth day of May, 1844, I was called in consultation, with Dr. Ephraim Buck, to see James Light,* in Tileston street, Boston — aged twenty-seven years — recently married — by occupation, teamster — accustomed to labor from childhood — of healthy constitution and temperate habits. A heavy block of wrought granite had, an hour or so before, fallen upon the anterior edge of the tibia of the left leg, immediately above the ankle, while the calf of the leg rested upon the flat surface of another stone. The falling stone had struck the leg by one of its square angles, and made an opening, commencing at the instep, and extending upward fully six inches, and its width was about the same. Nearly an inch below the surface, at the bottom of this opening, was a mass of bony fragments, once constituting a part of the entire shaft of the tibia, and forming full three inches of its length. The soft parts, not divided by the accident, were so much contused and flattened, that when viewed from either side, the limb had the appearance of being nearly severed asunder.

* This patient was seen and examined by the Fellows of the Society at their Annual Meeting.

To determine if it would be justifiable to attempt to save the limb, we began by removing from the wound all the loose fragments of bone above mentioned, using our fingers, forceps, or the knife, as might be necessary, being always very careful to keep the edge of the knife close upon the bony structures; in this manner clearing the wound of thirty-eight pieces of bone, and other foreign substances. Having thus obtained abundance of room, we made an examination of the several tissues, to ascertain how much each of them was injured, and to estimate the probability of their being restored to health.

Our attention was, in the first place, directed to what now remained of the bones of the leg. The lower articulating extremity of the tibia, a fragment about half an inch long, and broken short off at its upper end, still retained its natural situation and connections with the astragalus, moving freely upon it, and as there was not any appearance of effused synovia, and no opening into the joint could be detected, we concluded the joint was sound and entire. The superior fragment of the tibia likewise was broken square across at its lower end. The fractured ends of the tibia were at least three inches apart; and it appeared as if the intermediate portion of bone had been removed by violence, yet without great injury having been inflicted upon the bones or soft parts beyond the limits of the wound.

Second, there was sufficient evidence of sensation, in every part, below and about the wound, to convince us that the nerves had not suffered irreparable injury.

Third, about four inches from the lower extremity of the fibula, and opposite its posterior edge, were two small openings through the skin, communicating with the seat of fracture of the fibula—(through these openings, portions of bone, which had escaped our first search, were afterward extracted)—there was but little extravasation of blood, and with the exceptions already stated, the skin and cellular tissue had received less damage than could have been expected.

Fourth, the tendons, though denuded in many places, were not divided, nor extensively lacerated.

Fifth, the circulation in the veins and capillary system was much embarassed, as evinced by the slow return of blood into these vessels when emptied by pressure. The absence of pulsation in the usual track of the anterior tibial artery, and the nature and situation of the wound, led us to conclude that this bloodvessel was divided, although there was but little arterial bleeding. And it may here be well to remark, that as no pulsations of this artery could ever be detected, during the whole course of treatment, our opinion was probably correct.

The following questions now presented themselves for consideration:

First, could the circulation be maintained, and life preserved in parts below so formidable a wound, of such magnitude, situated so very near an important joint, complicated with so great loss of bone, the probable loss of the anterior tibial artery, and the embarrassment in the veins and capillaries necessarily resulting from so great contusion?

Second, would not a wound of this extent and severity, involving so many and important nervous, tendinous, and muscular parts, be very liable to be followed by fatal irritation or erysipelatous fever? and might not profuse suppuration and the ill consequences, usually resulting from the absorption and burrowing of matter, be expected?

Third, even if these dangers should be escaped, would not the tendinous structures so suffer from inflammation as to be united together into one mass with the contiguous parts, and thus lose their control over the foot, and afford the patient merely a useless member?

Fourth, might not the short articulating fragment of the tibia perish from the severe concussion of its ligamentous connections with the astragalus, and a deficient supply of nutrient blood, which now could only be transmitted by the minute vessels? Futhermore, even should life be preserved in this fragment of tibia, would it possess sufficient vital energy to become consolidated by bony union with the superior fragment?

Whether the circulation in the foot would be successfully established, and whether we could support and maintain the foot

in such a position as to prevent gangrene and ulceration, were to us matters of most serious consideration. We had great reliance on the youth, temperance, and health of the patient; we called to mind, also, that there was but slight extravasation of blood into the cellular membrane, notwithstanding the violence of the concussion; and we thought it reasonable to hope and expect, that the lapse of a little time would prove the circulating system to have suffered less damage than was indicated by present appearances. Again, observation and experience had taught us, that, when excessively severe nervous symptoms had occurred after a compound fracture, and especially when near a large joint, the external wound had almost always been small; the sharp points of the bones having merely passed through the skin and fasciae, or else had been driven in among the membranous parts. We had observed, also, that fever of various species had most frequently occurred in cases of this peculiar description, arising probably from similar causes of mechanical irritation, or by matter pent up by membranous structures, burrowing deeply within the limb.

Having thus considered the case in all its various aspects, we concluded to attempt to preserve the limb, having great confidence in the habits and constitution of the patient, and being assured of cordial cooperation both by himself and friends in whatever means might be thought of use in the management of the case. Having made a counter opening aside of the tendo Achillis, and placed a seton therein to prevent its too early healing, the patient was laid upon a bed composed of two matresses, each filled with very soft straw, placed one above the other, and made as smooth as possible. In length, the matresses reached eighteen inches below the foot, and their width was just sufficient for a single person to lie comfortably. One pillow, only, was allowed for the head; and a pillow, covered by a folded sheet, was placed to receive the wounded limb. The leg, having been well shaved, was laid upon the calf and heel, without splint or bandage of any kind. The foot was supported and kept in its proper position by a frame of wood, consisting of three pieces of common pine board, each eight inches wide; the first of these pieces, having

its upper end opposite the inside of the knee, reached downward close to, and in the direction of the leg, below the foot ten inches, where it was joined at right angles to the second piece, which was ten inches long; and this second was united with the third piece, which extended upward, parallel with the first piece, outside the leg and body, as far as the axilla. Bolsters, of suitable size and softness, were placed along each side of the leg and foot, so as to give a steady and secure bearing upon the frame, without, however, causing constriction of the limb. To lessen the chance of hemorrhage, and to be able to control it readily, if it should occur, we thought best not to apply dressings of any sort to the wound. During the first ten days, there was neither great pain, inflammation, nor fever. The foot and ankle were somewhat swollen, and moderately warm; but darker in color than natural. In due time, suppuration was established, and granulations began to show themselves. The wound was then dressed with lint spread with mild ointment, and the greatest care was taken to preserve cleanliness, and to procure a prompt and entire discharge of matter from all parts of the wound. As the granulations increased, the swelling of the leg and foot subsided, and the size of the wound diminished rapidly, the ends of the bones being brought nearer together by the contraction of the muscles.

The immediate care and supervision of this interesting case devolved, principally, upon Dr. Buck and his son; and to their untiring attentions and judicious management, I chiefly attribute its successful result. But notwithstanding their exertions, an eschar formed on the heel, doubtless in consequence of imperfect circulation; and great troubles seemed impending; these, however, were obviated by mechanical means ingeniously contrived, whereby the weight of the foot was transferred, temporarily, from the heel to other parts.

During the first week, the patient was purged daily. His nutriment consisted of gruel, toast-water, and other diluent drinks: ten or twelve days afterward, a generous diet was allowed. No exfoliation took place, though several loose splinters of bone were discharged through the skin even after the closure of the principal wound.

The injured limb now is well formed; two and a half inches shorter than its fellow, and is slightly bent forward at the place of fracture. The position and direction of the toes are in every respect natural. The ankle is free from stiffness, and James Light has as servicable a leg as is usually obtained after a compound fracture. At the end of eight months, he could walk two miles at a time, without being tired. He wears a shoe with a high heel, and in less than a year, recommenced his labors as a teamster, and is now able to perform a good day's work in this capacity. W. J. W.

CASE V.

As a steamboat approached her landing place, on the eighteenth of July, 1844, she struck, with great force, against the leg of David Pulsifer, junior,* a lad nine years old, who was heedlessly sitting on the pier of the wharf, with his feet hanging down over the water. Soon after the accident, I saw him in company with Dr. John Ware, at his father's house in Salem Street, Boston. The patient was in great pain, and had much constitutional disturbance and nervous excitement. The tibia and fibula were both broken midway from the foot to the knee, and their fractured ends projected forward, forming an angle of nearly 140°. The periosteum was wanting on the front of the broken bones, a distance of three quarters of an inch from the fracture. A small portion of tibia was missing. All the extensor muscles, except part of those arising from the interosseous ligament, were severed as if cut by a dull knife, their truncated ends lying about two inches apart. The skin, cellular membrane, and fasciae, were abraded and gone from a surface, the upper margin of which was along the head of the tibia from the inner hamstring to the insertion of the ligament of the patella; from this point, the outward margin reached to the edge of the fibula opposite the fracture. The inferior margin extended across the limb, anteriorly

* This patient was seen and examined by the Fellows of the Society at their Annual Meeting.

downward, to the anterior edge of the tibia, about two inches below the fracture, and thence posteriorly, upward, to a point in the calf of the leg opposite the fracture. And it may here be remarked, that the entire width of sound skin, on the back of the leg in this region, did not exceed one and a half inches. The remaining margin, on the inside of the limb, was from the point already spoken of in the calf of the leg to the inner hamstring. The fingers could be passed behind the broken bones, between them and the muscles.

As the boat rebounded from the wharf, a piece of flesh was seen to drop into the water; yet, owing to the retraction of the skin, the loss of integuments was probably less than the apparent wound. At this time, no pulsation could be discovered in the course, either of the anterior or posterior fibial artery. The leg and foot retained some power of feeling, but were cold to the touch.

Under these circumstances, it was agreed to put the patient in bed, to draw the leg out strait, placing it on its outer side, upon a soft pillow, and then wait awhile to ascertain how far the circulation of blood would be reestablished. At the end of five hours, we had the pleasure of finding our patient more free from pain, his foot and leg warm, and both tibial arteries pulsating distinctly. We now determined to attempt to save the limb, being encouraged by the following considerations.

First, although the limb perhaps was more than half divided, yet the trunks of the most important arteries, veins, and nerves were unhurt.

Second, although the integuments appeared lost over so large a surface, nevertheless we had but little doubt that the actual loss of skin was less than it seemed to be; and further, that a sufficiency of skin might be borrowed from the neighboring parts to almost cover the wound.

Third, such was the nature and extent of the wound, that there was no danger of the lodgment of matter and its consequences.

Fourth, as the joints and tendons were uninjured, we had good reason to believe that, if the patient could survive the first shock, and reunion of the bones should take place, he would obtain a useful leg.

Fifth, the season of the year and the locality of the patient promised to afford all the advantages of pure air, ventilation, and quiet. Besides, his parents and friends possessed the desirable intelligence, firmness, and devotion, to ensure perfect coöperation in nursing and executing any proposed measures.

Having decided upon our course, two hair matresses of convenient thickness were so laid, one above the other, on the sacking of a bedstead, that a horizontal and even surface was afforded for the body. That part of the upper matress, which was to receive the leg, was then raised from the under, the height of ten inches, by inserting pillows between them, so as to yield an elevated, smooth, and level surface for the limb. The bed-clothes were so arranged that they might easily be adjusted or removed, and were carefully guarded to protect them from any foul discharges. The patient was now put in the bed thus prepared, the leg was laid partly upon its outer side and partly upon the heel. A small bolster was placed under the outside of the foot, for the purpose of retaining the natural direction of the foot with the knee. Other soft and elastic substances were so arranged along the leg, that the weight might be equally distributed.

The wound was lightly covered with lint, smeared with resinous ointment.

The diet was toast water, gruel, and lemonade; no anodyne was given. A strenuous attempt was made, for two days, to evacuate the bowels, first by Rochelle salts, in small doses, and then by castor oil; but without success. On the third day, enemata were resorted to, and were very effectual, bringing away copious natural discharges; and ever afterward during the treatment, enemata proved sufficient to empty the bowels. The limb continued to be remarkably comfortable; the foot warm, and its arteries pulsating naturally. Two or three days after the accident, the patient found he could move his toes somewhat, and was much pleased. His thirst was not great, his tongue was but slightly coated, his skin of satisfactory warmth and moisture, his sleep sufficient and refreshing. On the seventh day, suppuration was established over all the soft parts; there was not any sloughing, and but moderate swelling of the foot or leg below the fracture.

The fibres of the gastrocnemius and soleus, which had been violently contused, gave evidence of adequate circulation and healthy action. He was now permitted to take bread and butter, which had been his favorite food and chief nourishment from infancy; he also had a little ripe fruit, and now and then, but seldom, he was induced to eat some of the breast of a broiled chicken.

The dressing of lint, smeared with resinous ointment, was continued for about twenty days. The greatest care was always taken to remove, daily, all matter which had been discharged, and to maintain the most scrupulous cleanliness with the least possible disturbance of the limb.

At the end of three weeks, granulations were seen arising from the fractured extremities of the bones, and covering, also, the entire surface of the wound, which was fast filling up and losing its hollow and disconnected appearance, as cicatrization had commenced on the inner and upper part of the calf, the skin having grown down, and adhesion taken place between the deep seated structures on the posterior part of the leg. From this time, narrow strips of linen, spread with Turner's cerate, were applied upon the margin of the wound, and the whole wound was filled with abundance of lint to absorb and imbibe all discharges.

The patient had always made great complaint, whenever the dressings were changed. Although handled with the utmost care and tenderness, he occasionally would cry out, saying he had acute pain shooting through the head; yet shortly afterward he would become cheerful, and remark that he had not suffered much, but feared that he should. He went on in this way, improving fast, till about the middle of August, when, one day, on removing the dressings, the muscles originally severed appeared covered with striae of dark blood, seeming as if pressed out from the minute veins. The appetite and strength were less; but in other respects there was no change. The next day, the wound had become of a deep purple over the whole surface. The granulations were puffy, and discharged unhealthy sanious fluid. The leg and foot were cold and deep colored. He had nausea,

coldness of the skin, severe shooting pains in the ankle, alternating with similar pains in the head, which caused sudden and violent outcries. In the night he was delirious. On the third day there were small, frequent, and slimy stools with great tenesmus; the discharge from the wound, however, was less, and of better quality. The appearance of the granulations, also, was somewhat improved, especially in color. The foot and leg were warmer, but a little swollen. Upon the part of the wound, immediately over the upper end of the lower fragment of the tibia, was an elevated red border, which daily became more and more developed, gradually traveling downward over the leg, ankle, and foot, followed by slight desquamation. While this was going on, the whole foot, but especially the region near the ankle, was exquisitely tender and sensitive. The diarrhœa and other severe symptoms all passed away in about sixteen days, leaving the patient emaciated and debilitated, with one small sloughy sore on the outer ankle, and another over the head of the fibula. While appearances were adverse and threatening, the limb was carefully lifted daily, or every second day, to allow all discharges to be removed, and the limb to be perfectly cleansed. On the under surface a coating of linen, well spread with Turner's cerate, was applied, and underneath all was placed a piece of very fine oiled silk, and the whole limb then laid upon a soft thin pillow of carded cotton.

When the patient first seemed to be losing ground, wine and sulphate of quinine were administered. On the second day he took six grains of ipecac, which operated upward and downward, causing him to seem better; the next day the wine and quinine were resumed with apparent benefit, but the state of the bowels soon made a change necessary. Six grains of blue pill, to be followed at the end of six hours with six grains of ipecac, were therefore ordered. After the operation of these remedies, as the stools still continued frequent and unnatural, laudanum was given in small doses. I soon became convinced, that the patient had received benefit, only from the blue pill and ipecac, and, that the other remedies afforded merely a temporary and fallacious relief. The treatment, therefore, for some days, notwithstanding the de-

bility and the state of the limb, was restricted to the cautious use of evacuants; by persevering with them, every thing alarming disappeared, about the first of September. The appetite of our patient, then being restored, he consented, by entreaty, to take wine and meat; the wine was soon abandoned; but meat was grateful to him, and he ate of it freely till his strength returned: he has since, however, renounced meat, and gone back to his first love, bread and butter, which he thinks the proper food for him, if not for all men.

While the local symptoms were unfavorable, there was more or less delirium every night, and the last two days, on which stimulants were administered, there was a disposition to sleep, the head being bent backward, besides having at times some lateral motions. There was considerable thirst, but the tongue was never dry nor parched, its appearance being deceptive, and seeming to indicate treatment different from that which experience proved to be correct. The pulse was always frequent, having a range of beating from 110 to 140 strokes each minute. The feel of the pulse was not bad, except while the diarrhœa existed; it was urgent, and at times so peculiarly so, that the incautious might have considered it evidence of inflammation or fever. I doubt not, however, that this peculiar pulse indicated a salutary effort of nature to carry on the circulation, in parts so extensively and severely injured.

The simple means, already described, for equalizing the bearing of the limb, and for retaining the foot in its natural position, fulfilled every desired purpose, throughout the whole process of cure; there never having been occasion to employ splints, bandages, ligatures, or apparatus of any other kind.

A small exfoliation from the anterior surface of the upper fragment of the tibia, took place in sixty days, and at the end of four months, there was a somewhat larger exfoliation from the lower fragment. At this time, the bones were somewhat firmly united, and the skin was so drawn down from above and about the knee, and up from the leg, as to leave a cicatrix almost incredibly small, considering the great loss of substance and the original magnitude of the wound. There was but little stiffness

about the joints. The toe pointed downward scarcely any, if at all. The leg was of its proper length, the foot had its natural direction and position, and with the exception of a deep and large cavity, from loss of substance and other obvious causes, was fast regaining its wonted power. At the present time, July first, 1845, the wound is entirely healed, and, with the aid of a small stick, he walks well, with but little limping. W. J. W.

CASE VI.

On the fifth of May, 1843, a rail having become loose, upon the viaduct of the Charlestown Branch Rail Road, over Charles River, a train composed of an engine, a tender, and a passenger car, while passing at a rapid rate across the viaduct, was thrown from the track, and precipitated to the bed of the river below, a distance of fifteen feet, the tide then being nearly out. The tender, which had been stationed between the engine and car, was thrown from its position, and afterward found in the rear of the car, having entirely unroofed, and nearly demolished it in the downfall. Among the sufferers from this accident, was David Chambers,* aged twenty-three years, a man of temperate habits and sound constitution, employed on the road as a conductor, who, at the time of the mishap, was attempting to pass from the car forward to the engine.

I was soon called to him, and found his countenance pallid and hippocratic, his skin covered with a cold sweat, his pulse small, irregular, and intermitting, occasionally it was imperceptible. He had frequent sighings, and jactitation of the upper extremities. Nausea was almost constant, always much aggravated by motion, or slight pressure upon the abdomen, either of which would induce vomiting. He was unable to stand, or to use his lower limbs. He said 'he had received a fatal wound, his back was broken, and he felt something that had been broken, swashing about within his belly.'

* This patient was seen and examined by the Fellows of the Society at their annual meeting.

On examining the abdomen, my attention was first directed to a tumor, extending from the whole line of Pouparts ligament, on the right side, nearly to the Umbilicus, and in size approaching to that of the open hand of a large man. The region of this tumor had an elevation of about one and a half inches, over the corresponding parts on the other side of the median line. This tumor was exquisitely sensitive, and pressure upon it caused instant vomiting and great distress. By bearing upon opposite sides of the Pelvis, Crepitus, or rather a shock, as of two large bones striking against each other, could be plainly distinguished. The left Os Innominatum was evidently higher up and farther back than the right. The patient stated, that at the time of the accident, he felt as if his bladder was full, and that he had not voided any urine for several hours previously. At present he could not make an effort to empty his bladder, and did not feel a desire to pass water. A Catheter of large size was immediately introduced along the Urethra, till its point began to sink under the Arch of the Pubes. Here it encountered an obstacle, which directed it suddenly to the patient's right side, whence entering an apparently free cavity, issue was given to about six ounces of bloody urine, attended with great relief to the patient, and a subsidence of the abdominal tumor, upon which pressure could now be better borne. Motion also was less annoying. He said that the sense of something swashing about within him was less. The Catheter was introduced three times within twelve hours, and each time with marked temporary relief. The patient constantly maintained that he had not any desire to void urine, or painful sense of its presence. There was not any infiltration into the Scrotum or Perinaeum anterior to its fascia. The general prostration, and the state of the pulse seemed to render bleeding improper; and the incessant vomiting prevented the effectual administration of cathartics or other medicines.

Having attentively considered the case, I judged that the Os Pubis of the right side was broken near the Symphisis, and that there was also a rupture of the left Sacro-Iliac Symphisis. I concluded that the abdominal tumor was caused by urine which had escaped through a rupture of the Bladder or Urethra, and

was confined between the Peritoneum and the muscles of the abdomen, and within the cellular tissue posterior to the fascia of the Perinaeum. Furthermore, I was satisfied that the case must terminate fatally, unless some means could be devised to establish a free and constant discharge of urine, and thus prevent its remaining in the Cellular Tissue, where I had no doubt it had gained entrance. Accordingly, about twenty-four hours after the accident, as the constitutional powers had somewhat rallied, I resolved to attempt making a free outlet for the urine. The bedstead having been sufficiently elevated by blocks of wood under its posts, the patient was so placed, that his hips rested exactly on its edge at the foot. His legs and thighs were held in the proper position for Lithotomy, by my friends, Doctors Hurd and Lyon. A Catheter was then, for the first time, successfully passed entirely within the cavity of the bladder, and four ounces of urine were evacuated. I next cut down, through the Perinaeum, upon the Catheter, striking it at the membranous part of the Urethra, which was opened freely. A Canula was then guided by the Catheter into the bladder, the Catheter withdrawn, and along the groove of the Canula, the point of a Lithotomy knife, Mr. Blizzard's, was introduced, and by its aid, a free incision made of the parts usually divided in Lithotomy. The patient was immediately relieved. He did not vomit after the Perinaeum was cut through, and the nausea disappeared within six hours. In the course of twenty-four hours, there was a material subsidence of the abdominal swelling and tenderness. Medicines now were retained and operated efficaciously and kindly. In short, perfect calm succeeded to the storm which had been so threatening. No effort was made to replace the bones, and the greatest caution was observed, during the operation, and at all times, to avoid motion, lest irreparable injury should ensue. The hips were supported and bound together by a bandage which laced in front, and was wide enough to surround the whole Pelvis. The appetite soon became good. The patient was cheerful and suffered but little pain.

At the end of twenty-five days, the bones were ascertained to be consolidated; and on the twenty-second of June, Mr. Chambers

arose from his bed and walked a few steps. The right lower limb was now found to be an inch and a half longer than the left, when he stood erect, and two and a half inches longer, when sitting down with the legs at right angles with the body. At this time, I had the pleasure of presenting him to the notice of many gentlemen of our profession, who visited him and examined him carefully.

In fifty-five days from the injury, he was able to perform a day's work on the Road, and soon afterward he regularly performed all his former customary duties. In walking, he evidently raises himself higher as he bears on the right limb, than when on the left. He has his natural activity, is free from pain, can walk as far as ever, and does not know that he is, in any respect, worse off for the accident. W. J. W.

CASE VII.

Cambridge, July 12th, 1845.

My dear sir:

Samuel Akerman, aged seventeen, in the afternoon of June tenth, 1845, while directing the reeling of a small rope upon a reel, driven by a steam engine, was caught by the foot, the rope passing just over the instep and drawing him instantly up to the shaft with which the reel turned. He made one complete turn around the shaft, his foot remaining fixed, and then fell to the ground. On visiting him, the left fibula was found broken in its lower third, and the tibia broken nearly transversely one and a half inches above the ankle, the upper fragment piercing the integument on the inside of the Tendo Achillis, and projecting between two and three inches. The posterior tibial nerve, artery, and accompanying veins were broken across, the artery projecting from the wound at each pulsation. There was a small wound five inches above the ankle over the tibia, and the skin, between this and the larger wound, separated from the parts beneath.

There was little bleeding, none from the artery which was contracted for one third of an inch from its torn extremity. The anterior tibial artery was felt pulsating upon the dorsum of the foot. It was determined to reduce the bone immediately. A piece of pasteboard was passed between the bone and skin, and, with the assistance of my friend, Dr. Chaplin, three fourths of an inch of the projecting tibia removed by the saw. The bone was then, with slight extension, readily reduced. The patient was soon after seen by Dr. W. J. Walker, who concurred with us in the propriety of endeavoring to save the foot, and advised that free incisions be made in the fascia and integuments both above and below the wound. During the following night, he slept four hours. In the morning, he was removed to a quiet, well ventilated room, and laid upon a firm matress, with a soft cushion for the reception of the limb. An incision, between two and a half and three inches in extent, was made from the wound upward along the tendo Achillis, dividing the integuments and fascia, which last was found quite tense; a similar incision was carried downward, but of less extent. The foot was then placed upon the heel and covered with a moist cloth; this was the only dressing. During the day, his pulse was 90, full, but not hard. A dose of castor oil produced three dejections. During the three following days, he was restless, and at times delirious, but his pulse was seldom above 100; his foot was warm and of a good color. On the fifth day, he became more comfortable, took his gruel with relish; had much less pain, and the discharge from the wound was free, exceedingly offensive and bloody. On the seventh, the swelling of the foot had begun to subside; the sloughs on the dorsum of the foot, occasioned by the rope, were beginning to separate, and the wound was filling up with healthy granulations. On the thirteenth day, it was found necessary to lay the limb upon its side, on account of a commencing slough on the heel. On the twenty-fourth day, sufficient firmness existed in the fractured parts to enable the patient to raise his limb from the bed. From that time to the present, the cure has progressed rapidly, and the wounds are fast diminishing in extent. There is every reason to

believe he will be well in due time, with a limb but very little shortened.* I am, dear sir, with great respect, your friend and pupil, M. Wyman.

CASE VIII.

Halifax in Nova Scotia, June the 12th, 1768.

Dear Sir,

The pleasure of your acquaintance in London, and the advantages since received by your publication, make me heartily congratulate you upon the reception it very deservedly meets with in the world; and, having an opportunity of writing by a ship going to England, I could not forbear transmitting an account of the success I have had lately in a very bad compound fracture of the leg, by pursuing your method, believing such communication must necessarily prove agreeable to you.

A soldier, aged about thirty, received this accident last January. I was called to him immediately and found it necessary *to dilate the wound and saw off between two and three inches of the whole substance of the Tibia much fractured, and the Fibula was fractured obliquely above two inches below the fracture of the Tibia.*

The wound was dressed as you direct in your Observations; the whole limb was wrapped up in a poultice extended upon a

* I take great pleasure in inserting the above interesting case, treated by my young friend, Dr. Wyman. It illustrates, first, the value of draining the wound from the beginning, second, of shortening the bone, so as to prevent tension in the direction of the length of the limb, third, of prompt and ample divisions of membranous and other soft parts, so as to prevent swelling and tension in the circumference of the limb, fourth, in connexion with the cases lettered D. and E. it shows that broken bones reunite as readily in compound as in simple fractures, provided all complication be removed. It has been my invariable practice, when my patients would consent, to saw off a portion of any bone which protruded through the skin in fractures of the limbs. This I have done, not only to facilitate reduction, but to prevent tension, and more easily extract loose portions of bone. Of the great value of this precept, as given by Mr. Gooch, I have no doubt. W. J. W.

pillow, using the tailed bandage and a stiff paper case, with the assistance also of junks in order to keep it straight and more steady.

By the common treatment of the wound, *it was perfectly cicatrized in three months, and now, about five months since the accident, the callus is perfectly ossified, the man in good health, the limb useful and well shaped, and but very little shorter than the other.*

I was very attentive in observing the operation and progress of nature in making good this loss of substance of the bone, and before the exfoliations were cast off from the ends, a portion of the bone being sawn off at each end, granulations appeared like flesh in the intermediate space, gradually becoming bone as you have observed.*

The advantages of this practice evidently appear in its support; the free openings and removal of pointed fragments of the bone at first, prevent irritation of the very sensible membranous parts, whence proceed inflammation and abscesses in consequence thereof; and it was very pleasing to others as well as myself, to observe what little complaint the patient made, and how expeditiously the cure was accomplished.

I am persuaded, were this rational practice general, few limbs would require amputation on account of splintered bone; and happy would it be indeed, did this method prevail universally in the army and navy.† I am, with great respect, dear sir, your much obliged humble servant, CHARLES HALL,

Surgeon to the 14th regiment.

* See my Cases and Remarks in Surgery, Edit. II, page 285 and seq.

† When I dwelt in Norwich, I was called into the country by a surgeon in great business, expressly to assist in an amputation in consequence of an accident of this nature, to whom I proposed and recommended the method here mentioned. He readily assented to it, by which means the limb was saved and made perfectly useful. I am fully convinced of the propriety and utility of this treatment of compound fractures, from an uninterrupted series of success attending it, having never been obliged to amputate a limb on such an occasion.

See my Cases and Remarks in Surgery, Edit. II, concerning compound fractures.—*Gooch. Vol.* 3, *page* 79.

CASE IX.

A commander at sea, fighting valiantly in the midst of the enemy's fleet, had his leg fractured by the fall of his mizzen top mast, it breaking his leg transversely near the ankle, the edge of the bone thrusting out through the skin. *He not suffering the bone then presently to be set while it was warm, afterward when it was swelled and stiff, it did not yield to extension,* but became painful and inflamed.* After some few days, he was brought to *London*, and I was sent to him. He was of an ill habit of body, subject to the gout and dysentery; and the fracture, being accompanied with great defluxion, was not in a condition to admit of extension; therefore, according to *Fallopius* and *Hippocrates*, before cited by me in this treatise, I proposed to his chirurgeon to proceed by lenients to mitigate pain, inflammation, etc., and by bandage to hinder defluxion. Which we did; and his chirurgeon continued that method for a few days, by which the accidents were remitted. When we met again, finding the patient in ease, we took off the dressings, and agreed to make extension and reduce the fracture. The patient was of a dry tough body, and the member yielded difficulty to the stretch. *Upon which consideration, we satisfied ourselves with a moderate extension, doubting that upon a more forcible one, ill accidents might follow*, as an inflammation presently did. We drest it up as a compound fracture; and after some days dressing, a *callus* thrust forth, and united the bones. That *callus* being confirmed and dried, we hastened the exfoliation of the foul bone by a little *Ægyptiacum* and *pulv myrrhæ* dissolved in *Spir Vin*, applied hot upon an armed Probe. Thus the bone was exfoliated and the ulcer cured by the ordinary intentions in such cases. Yet the inward leaning of the bone continued a weakness in the member a long time, as is usual where the fracture hath not been timely or well reduced.—*Wiseman, vol.* 2, *page* 262.

* Tension in the direction of the length of the limb. See note to case No. 21. W. J. W.

CASE X.

In St. Clement's parish behind the church, some years since, while I was one evening preparing my dressings for the setting of a fractured thigh-bone in a little child, I was hastily fetcht to assist one Mr. Powell, a barber-chirurgeon, in the setting of a fracture of both the focils of the leg in a man about sixty years of age, of a dry tough body. There I met Mr. Tatham, an industrious, knowing chirurgeon. The fracture was oblique, almost *secundum longitudinem*, and the *os tibiæ* or greater focil had shut itself out by the side of the ankle a great length. *We endeavoured by a strong extension to reduce this fractured bone into its place, but it yielded very difficulty to our endeavour: yet we reduced it, and afterwards cleansed the wound of what shivers or pieces of bones we met with, and brought the lips of the wound together by suture, hoping thereby to keep the fractured bone the closer.*

These great fractures with large wounds, and near the joints, are always subject to grievous pain: and this much more, for that the tendons and musculous flesh were sorely torn, and stretcht by the great extension: *so it was not likely to be attended with less mischief than afterwards befell it.** We let him blood that night and gave him an anodyne draught to dispose him to rest. But he slept little, his pain continuing with much disturbance. *A fever also followed, and within two or three days he became delirious, and in the absence of his attendants, got out of his bed; Upon which, the great focil flew out as at first, and the poor man fell down upon the floor as half dead. We were both presently fetcht, and taking off the dressings, we saw the bone distorted, and the lower stitches broken, and the wound of an ill aspect, as it were, tending to mortification: also the bone thrust out so far, that there was no hopes of its being any more reduced by a new extension.* Upon which consideration we resolved to saw off the end of it: and to that purpose having prepared all things ready, we cut off the remaining stitches, and turned the foot on one side towards the small of the leg, thrusting

* See note, in Case No. 21.

the bone more out, the one sawing the end off, whilst the other with a *spatula*, defended the tendinous flesh underneath from being wounded by the saw. *That done, we cleansed the wound from the saw dust, as also from the shivers of little bones, which we had not discovered in our first dressing, they lying pricking the periosteum, between the fractured bones and membranes, by which those sad accidents had been hastened.* The wound thus cleansed, we turned the foot right into its natural place, there being no need of extension; which being done, we scarified the lips of the wound, and washt them *cum spir vini*, with a little Ægyptiac dissolved in it, and applied *to the ends of the bones Pledgits dipt in the same, and prest out.* We also drest the rest of the wound *cum unguent* basilic with a little *ol Terebinth* warm, and applied a mixture of an Emplast Paracels: and *diachalcit* over the wound and parts about, and then compress and bandage over that, as in compound fractures. The great work was how to support the foot now and keep it even with the rest of the leg, there being so great a distance between them without any bone. But we, having placed the leg upon a quilted pillow, laid him again in his bed, and fitted it in a wainscot case, where it was kept steady and equal, and lay conveniently for our daily dressing him. This done, we committed him to the care of his friends to keep him there quiet, and ordered him cordial juleps etc. After some hours, we let him blood again. *From that time his pain lessened, and his fever and other ill symptoms went off as the wound digested.— Wiseman, vol. 2, page* 263.

CASE XI.

A soldier being shot by a musket bullet in the fore part of the arm, near the *Biceps*, it fractured the bone, and passed quite through. I endeavored, by extension, to place the fractured bone even together, but could not. Upon which I dilated the latter orifice by a large incision, according to the rectitude of the mem-

ber, to pull out those fragments of bones which hindered their right coaptation; and, putting my finger into the wound for that purpose, I pulled out a ragged piece of a bullet. Whether it was part of that which had passed through, was the question. Some of the bystanders thought he was shot with a brace of bullets; but I rather think the bullet was torn by the bone, and that this part was it which had made its way through. *However, by this extraction, the main bone was rightly placed, the shivers, with the extraneous bodies, removed, the matter happily discharged by this depending orifice, and the patient was cured by the common intentions of healing these fractured gun-shot wounds. Whereas if I had taken it for granted, that the bullet was passed through, and contented myself in having endeavored the reducing of the fractured bones, and so dressed him up, it had certainly inflamed and gangrened.* This confirms that doctrine in setting of bones, that if any bone will not be placed equally among his fellows, you ought to cut upon it and take it out.—*Wiseman. Vol.* 2, *page* 184.

CASE XII.

In heat of fight at sea, among the many wounded men that were put down into the hold to me, one of them had his right arm extremely shattered, about two fingers' breadth, on the outside, above the elbow, by a great splinter. I ought to have cut off this man's arm presently, but a sudden cry, that our ship was on fire, put me in such disorder, that I rather thought of saving myself than dressing my patients. I hastily clapt a dressing upon the wound, and rolled it up, leaving his arm in his other hand to support it, and endeavored to get up out of the hold as others did, verily believing I should never dress him nor any of them more. But our men bravely quitted themselves of the fire-ship, by cutting the sprit-sail tackle off with their short hatchets, (which they wore during fight sticking in their sashes.) So we were freed of the fire, and by our hoisting up the topsails got clear of our enemy, and I returned

to my work. But I was at a loss what to do with this man, who lay not far off, complaining of his arm. I would have cut it off instantly with a razor, (for, the bone being shattered, there needed no saw;) but the man would not suffer me to meddle with his arm, he crying, it was already dressed.

The fight being over, and we got into the next port, I caused this mariner's bed to be set up so that I might the more easily come to dress him, . . . *then putting my fingers into his wound, I pulled out first a piece of a splinter, an inch thick or thereabouts, more or less, then rags and bones, great and small; I left not the least shiver.* When I had so cleared the wound of all the extraneous bodies and loose bones, I was amazed to feel what a void space there was between the ends of the bones. But I proceeded and cut off the lacerated lips, which were of no use, *and dressed up the ends of the bones with a couple of dossils dipt in Spir Vini* and *Mel Rosar* warm. . . .

The bandage was made with great moderation, and so fastened, that it might be loosened without trouble to the patient. . . . *If it could not have been so put on, I should have foreborn the use of it, the cure of these wounds consisting in the easy dressing and quiet position, without which you will not cure one of them.* . . . But I was not satisfied how the space between the fractured ends of the main bone could be supplied with *callus. My patient was easier than any of my other with fractured wounds.* When it came to my turn to be visited by my brother chirurgeons of our squadron, they did not dislike the wound, nor my way of dressing, (for we being used to see one another's patients, had all much one way of dressing.) But they laughed at the excuse I made for not cutting off his arm, and doubted I should yet be forced to do it. But I kept my patient flat on his back, and that after a while was his greatest pain; for the wound digested, and the tumor was not then considerable. After the wound was well digested, and the bruised flesh separated, I renewed the dressings, etc. etc.

* * * * *

There was in this patient a strong callus filling up the void place of the lost bone at least two inches, with little or no short-

ening of the arm. But the joint of the elbow was so stiff, from the position it lay so long in, that he could not stretch that joint while I knew him, which was until that ship was cast away.—*Wiseman. Vol.* 2, *page* 185.

CASE XIII.

On the seventeenth of March, 1821, John Harper, a fine lad of fourteen years of age, carelessly riding at full trot, was thrown from his horse; as one of his feet hung in the stirrup, the animal took fright, ran away with him at a gallop, till the girth broke and he fell to the ground. On the arrival of Mr. Hagyard, the surgeon at Hunmanby, where the accident happened, he found the right leg dreadfully fractured; the broken ends of bone projecting from a wound of immense extent, and a portion of the tibia detached, which he removed. After placing the bones in contact, Mr. H. sent for my partner, Mr. Travis, and myself, expressing the greatest doubt, 'whether the resources of surgery were competent to save the boy's limb.' We arrived at candle-light, and found the poor lad in a small and wretched hovel, extended on a couch, with a large wound, and destruction of the skin of the middle of the leg; the upper portion of the tibia projecting like a stick, unconnected with any of the soft parts, and deprived even of its periosteum, to the extent of between two and three inches, and the lower portion denuded of all covering to the length of three fourths of an inch. The fibula was also fractured near the knee, and in the centre of the leg, so that it was divided into three pieces. It was, however, so connected with the surrounding parts, that the spiculæ of bone could only be discovered by the insertion of the finger into the wound. The teguments on the posterior part of the limb, although much bruised, were not deadened: and the circulation could be distinctly traced along the course of the posterior tibial artery. A considerable hæmorrhage took place at the moment of the accident, but

was now suppressed. The wound was six inches or more in length, and as many in breadth; but the boy was comparatively tranquil. On consultation, the grand question was whether to amputate the whole member; to put it up in splints as it was; or to saw off the denuded rough extremities of the tibia, and treat it as an ordinary compound fracture. In this dilemma, which required immediate decision, we determined upon the last expedient. The tourniquet was therefore applied, the broken ends of the bone raised from the wound, and while the limb was held steady by one, and a bone knife kept under the exposed portion of tibia by another of my friends, I successfully *amputated the two extremities of the fracture, including about three inches of the whole cylinder of the tibia.* We were unable to reach the fibula with any instrument, so that the two portions of the tibia could not be brought within an inch and a half or two inches of each other, without projecting the spiculæ of the former into the surrounding muscles. One vessel in the bone bled after the operation, but the hæmorrhage instantly stopped on the application of pressure. Stitches were now passed through the edges of the wound, their sides were drawn as nearly together as convenient, strips of adhesive plaster were applied round the limb, with an eighteen tailed bandage and splints. The boy was laid in an extended position, with the leg a little elevated upon a pillow. An opiate was administered, and small doses of Epsom salts prescribed for the morning.

March 18*th. He passed a good night;* pulse about 100; his bowels, after a few spasmodic pains, were relieved; he had a few startings of the limbs in the morning, which soon yielded. A very low diet was enjoined.

On our visit of the twenty-second, we found him so well, and the fever so trifling, that we did not dress the wound. He had used no medicines; *his foot was scarcely swelled; the limb was without pain and steady.* A small opening was made through the dressings to liberate any possible accumulation of pus; diet a little improved. When I visited him on the twenty-fourth, a week from the accident, the discharge and fetor had so increased, that it was judged necessary to remove the dressings. This was a delicate

operation, which we performed as seldom as possible; only a few drops of blood, however, escaped from the disturbance; the stitches were beginning to separate, a large dead piece of skin was detaching, and a sinuous * ulcer broke out above the wound, which discharged a table-spoonful of matter. On account of the trouble of removing the adhesive plaster, strips of lint spread with cerate were now substituted. Our patient went on favorably, with a slight interruption one night, from a change of position. Twenty-sixth, discharge increased, but by no means severe, very healthy:

* * * * * *

April 10*th, the limb much improved.* 14*th, the wound cicatrizing fast. Several small sinuses* broke out on the leg, but to my great satisfaction, on elevating the limb, it felt like a solid bone, without trembling in the centre as formerly.* We began now to strap it with the Emplastrum Plumbi, spread on linen, from the ankle to the knee.

* * * * * *

On the twenty-sixth of October, I made a journey to Hunmanby, when, to my great pleasure, I met the boy in the streets, looking remarkably fat and well, able to walk without crutches, with his limb only an inch shorter than the other.—Mr. Dunn, Medico Chirurg. Transactions. Vol. 12, *page* 167.

CASE XIV.

March 28*th,* 1821, 2 *P. M.* Johnson Turton, aged sixteen, was at work in the ship yard of Messrs. Tindells', when a plank of wood, eighteen feet in length, five in breadth, and half a foot in thickness, was thrown from the ship, which struck the middle of his leg. When Mr. Travis and myself arrived, we found him on a squab, the wound bleeding a little, and the foot turned

* Was not the constriction of the stitches and plasters the true cause of these sinuous ulcers? W. J. W.

inwards. His stocking was now removed, his trowers cut off, the wound washed and examined, and a loose portion of bone taken away with the fingers. Both the tibia and fibula were fractured; the ends of the former protruding from a very long wound, about half the length of his leg, which had the appearance of a clean cut; the ends of the bone were very ragged; *the most forcible extension could not place them in coaptation.* We, therefore, determined to saw off their extremities, with the common amputating saw. The upper portion, as in the former case, was removed first, a steel spatula being placed underneath, and a linen retractor round the bone, to defend the muscles; but the latter was so inconvenient that I threw it away, and depended on our hands. As the lower portion of bone was connected posteriorly with the muscles, the saw was withdrawn when it had gone nearly through, and the operation was completed with the bone forceps. No hæmorrhage followed, of any consequence; the wound was cleaned, the bones put in apposition. About half an inch of the exterior part of the tibia was left denuded of its periosteum, which was considered of no importance, as the rest of its circumference was connected with living parts. The edges of the wound were brought as near together as we could, and retained with three stitches, adhesive straps, and an eighteen tailed bandage. The limb appeared to be very straight, splints were applied and it was placed on a pillow in the extended position. *The boy complained as little as the other during the operation.*

* * * * * *

April 2*d.* The dressings at the lower part of the leg were released with scissors, some discharge oozed underneath. 3*d*, *the limb dressed for the first time, the wound assumed a fine healthy aspect;* nearly two inches of the upper part appeared to be almost healed, only seeming to want the cuticle. 4*th, much relieved by being dressed, passed a good night, pulse soft;* to take his ordinary diet, with half a pint of beer per diem. 5*th,* complained of pain on dressing, stitches released, the upper part of the wound, which appeared nearly united, again broke out, and the edges are receding. The edges were much inflamed and injured by the stitches. A medical friend fancied the appearance of his limb so

formidable, and the case likely to be so troublesome, that he said he would have removed the limb at first. *But the pain and inflamed edges seemed to me to have been only the effect of the undue tightness of the suture, arising from the endeavor to bring the edges in contact. 9th,* there seemed to be a sinus running from the fibula. We began to strap the whole limb with diachylon plaster on linen.—*Mr. Dunn, Medico Chirurg. Transactions. Vol.* 12, *page* 167.

CASE XV.

A man, aged nineteen, of a healthy and strong constitution, was on the 15th of August, 1750, wounded by a musket ball, which was fired from so short a distance, that after passing through his thigh and breaking the femur, it struck a woman, who was some distance off, in the foot. It entered his thigh in the lower third of the internal and posterior part, and escaped anteriorly and a little outwardly, just above the condyles of the femur, which was fractured for four fingers' breadth; as the examination of the larger splinters, which I sent to M. Morand, clearly showed.

The patient, being in a state of intoxication, increased the extent of his injury, by the attempts which he made to get up. After having been carried to St. Sauveur hospital, at Lille, his wound was properly dilated and the splinters removed by M. Pollet, head surgeon. The next morning, he suffered from *tension, great swelling, and sharp pains throughout the limb, with great febrile excitement.* Amputation was proposed in consultation, and decided upon as the sole way of obviating the grave symptoms which were to be expected in such a wound; indeed, it was not natural to suppose that union could take place, or that the circulation of the leg below the knee could go on, during so long a treatment as would be necessary, should an attempt be made to save the limb.

The patient, however, being opposed to amputation, it was necessary to wait the result. Some few small splinters were removed,

and an attempt was made to protect the flesh from the sharp corners of others which could not be removed. *The posterior wound was dilated still more at its upper border, in order that the pus might flow freely, and the limb was placed so as to favor this intention, and at the same time, the return of those fluids which obey the laws of circulation.* Notwithstanding these precautions, a number of abscesses were formed at different times; one on the inside of the knee, another on the outside, then a third, in front; none of them, however, seemed to be deep, or to communicate with the joint. *The necessary incisions assisted the escape of the rest of the splinters of bone. The limb was now swelled and gorged with stagnant fluids, so that mortification seemed impending.* Nature even seemed to indicate amputation by a line of separation encircling the limb at the upper border of the wound. The patient was now willing to lose his limb, but the surgeons, called in consultation, did not agree in recommending it. Diarrhœa and slow fever, which soon followed and resisted all remedies for a month, seemed to render it unfortunate that the operation had not been done.

About three months after the accident, an abscess, of considerable size, made its appearance at the upper and inner part of the thigh; another followed on the outside and very high up, which seemed to be under the fascia lata: they were both opened, and the parts properly dilated. Notwithstanding the carelessness of the patient with regard to diet, a healthy suppuration was now established from all the wounds, and perfect cicatrization was accomplished at the end of ten months.* The ends of the femur, drawn together by muscular contraction, united, and became bound together by a very strong callus, by means of which the patient makes use of the limb quite freely, and walks without assistance. The joint is not at all stiff; the thigh is shortened four inches, which corresponds with the quantity of bone lost.

This case seems important on many accounts. The nature and texture of the limb, composed of tendinous parts at the seat of the fracture, which was near to a large joint, and in the vicinity

* See fragment from Ambrose Paré, in appendix, lettered G.

of large blood-vessels, required much care on the part of the surgeon. The great degree of contusion in the course of the wound, the tearing of the fibrous membranes, and especially of the periosteum, the irritation which the sharp points of bone necessarily caused, the general disturbance in the whole limb which such a fracture must produce, were all calculated to inspire fears for the most severe symptoms. Others would also arise afterward from *the strangulation of the limb from swelling*, the suppuration from the wound, and abscesses on the limb, as well as from the effects which the vicinity of the pus to the knee joint might produce. To all these were to be added the danger from diarrhœa and fever. How vast must have been the labors of Nature to bring this wound to perfect cicatrization.—*M. Boucher, Mémoires de l'Académie de Chirurgie. Vol 5, page* 283.

CASE XVI.

I saw in the same hospital, while it was occupied by those officers who fell sick or were wounded in the last war, one of the king's guard recover, without amputation, from a gun shot fracture of the lower end of the humerus. The circumstances of this case were, however, very different from the preceding. Few of those grave symptoms occurred in this case. It must, however, be confessed, that many amputations have been performed from the fear in which surgeons stand of the accidents to which such injuries give rise.—*M. Boucher, Mémoires de l'Académie de Chirurgie. Vol 5, page* 283.

CASE XVII.

On the 23d of October, 1752, a laborer at the plaster quarries, near Ville Juif, had the misfortune to fall to the bottom of them,

a distance of about forty feet, from the breaking of the rope by which he was sustained.

M. Varnier, a skillful surgeon of Ville Juif, was sent for. He found the right leg broken; the tibia not only piercing the skin, but also the gaiter, of the workman.

As soon as the limb was uncovered, it was evident that the fracture was complicated and accompanied with comminution of the bones; and the injury seemed so severe, that after long reflection, M. Varnier thought that amputation offered the only chance of saving the patient's life. To this, however, he would not consent.

M. Varnier then proceeded, after getting ready a proper apparatus, to the reduction. He was, however, first obliged to make an incision on the anterior part of the leg, to reduce the bones which protruded. After this reduction and the proper dressing of the fracture, the patient was bled, and this was repeated four times that very day. The three following days, he was bled six times, from the foot as well as arm, in order to calm the delirium, which, however, lasted ten days.

During this time, it was impossible to keep the parts in position. The foot and leg swelled excessively with phlyctenae. M. Varnier made a number of incisions to oppose the progress of the gangrene. The symptoms being somewhat calmed, M. V. wished again to try reduction; but the swelling was so great that it was found impossible.

I was requested to see the patient on the 11th of November, the 20th day from the accident. I found the limb considerably swelled, and a portion of the tibia bare of periosteum, raised above the level of the skin, and having no other connections than a portion of the interosseous membrane and periosteum.

I removed this portion of bone, taking care to preserve as little as possible of the periosteum; the medulla was already fœtid. At the lower end of the fracture, we found another fragment, totally detached, nine lines in length by three in width. The first piece was five inches, three lines, in length, composing the*

* Query. Had this piece of bone been removed at first, would it not have saved much subsequent trouble? W. J. W.

whole thickness of the tibia. After removing these bones, we pressed out a quantity of sanguinolent matter, which seemed to proceed from the outer and inner sides of the leg.

The posterior part was in a gangrenous condition, from the heel to within three fingers' breadth of the ham. The skin, cellular tissue, and fascia, were mortified to such an extent, that on raising the leg, they fell in shreds. Having removed them, the fracture of the fibula was brought into view, situated near its middle, corresponding with the centre of the cavern left by removing the fragments of the tibia: for more than six fingers' breadth, it was denuded of periosteum, and the extremities overshot each other about four inches.

I thought it my duty not to reduce these bones, until I had thought of an apparatus which would allow me to support this mass of flesh from which so large a quantity of bone had been removed, and dress the posterior part, without deranging the fibula, after I should have reduced it.

Some time ago, M. la Faye presented to the Academy a machine of tinned iron, for the use of the Military Hospitals, intended to facilitate the transport of those who suffer from fractures of the thigh or leg. I took this machine as my model, making certain modifications to suit the present case, of which the most important was, to enable me to dress the posterior part of the leg without undoing the apparatus. With this view, I cut the three posterior sheets of tin, transversely, into three equal parts of two inches each; by which means, I obtained three doors or windows which moved upon hinges, at the part corresponding to the inside of the leg, and could be closed by a sliding pin upon the outside.

After dressing the wound upon the anterior part of the leg, closing the machine, and fastening it by two cords moderately tight, the one at the upper and the other at the lower part, the limb can be raised without fear of disturbance. . . . After raising the limb, and having *prepared* dressings the size of each opening, the *windows* are removed successively, and the dressings introduced, leaving but a small portion of the leg at any one time unsupported.

Every thing being thus prepared, we reduced the fibula, placed the limb in the apparatus, and dressed it in the way just described.

Before this, the patient was in great pain; and notwithstanding the strict diet which was enforced, was troubled with loss of sleep and continual fever, which put his life in danger, although he was of a strong and vigorous constitution, and only about twenty-nine years of age. The reduction, however, improved his condition at once, so that the first night he slept four or five hours: the suppuration diminished daily. The wound was dressed with dry lint; the ends of the fibula, and of the tibia, which last was granulating well, were dressed with dossils dipped in oil of turpentine. No exfoliation occurred from these bones.

Every thing went on well until the 8th of December, when the portion of the fibula which had lost its natural color, some days before, separated into a number of pieces, the largest of which was an inch in length. M. Varnier informed me of this; I found the muscles so contracted, that the limb was shortened about four inches, and, of course, considerably augmented in thickness.

On examining the extremities of these bones, I found that there was not sufficient extent of surface to maintain them against each other. We therefore tried no longer to reduce it, *but I endeavored to find a way to keep up permanent extension, as the patient could not remain in this condition, on account of the great pain produced by the pricking of the ends of bone which stuck into the flesh.* To accomplish this, I drove into the earth the end of a plank, four feet in length by one in width, and two inches in thickness, for the patient was in a cellar. This was supported by nails driven into the lower horizontal bar of the bed. I cut out a portion of the upper part of this plank, four inches wide and eighteen long, which left me two perpendicular bars, in which I bored holes an inch apart up and down, for a use that shall be mentioned presently.

I had previously had a wheel made about four inches in diameter, pierced in its circumference by a number of holes, half an inch from each other. Another hole was made in the centre to receive a cylindrical axis, a foot in length and an inch in diameter,

cut square at the end opposite the wheel, to which a handle was to be fitted to turn it.

I then endeavored to make counter extension by means of bands, some of which were passed under the axilla, others in the groin of the fractured side, and others to the knee, all well padded and fastened to the head of the bed. I then placed a very thick compress around the leg, just above the malleoli, and over it a band of strong thread ribbon, [*quality binding,*] the two ends of which were nailed to the axis of the wheel just described. It is evident that when the axis is turned by means of its handle, this extending band must be rolled round it, to any desirable extent. When this is accomplished, the wheel is stopped by means of a pin passed through one of the holes in its circumference, while the axis is sustained by pegs, placed at discretion, in the holes made in the plank.

At our first trial of this apparatus, the limb was lengthened two inches, without any inconvenience to the patient, but on the contrary, his pain was diminished.

For a number of days, care was taken to turn the wheel several times, so as to gain a few holes only: in this way, the limb regained its natural length.*

To relieve the patient from the pain of the counter-extending bands, I placed another plank at the foot of his bed, with a kind of rest, against which he could press with his sound foot. This added much to his comfort.

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The wound, caused by the protrusion of the tibia, was entirely healed the 20th of January, (1753.) Some portions of bone exfoliated after this from the fibula. We had, however, the satisfaction to see it covered by healthy granulations on the 2d of February, and the posterior wound wholly cicatrized the 1st of March. *I then observed that a substance of moderate solidity might be felt between the two ends of the tibia, in the hollow left by the portion removed, particularly on the internal side where the periosteum was least removed.*

* See Fragment translated from La Motte, annexed, lettered K.

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This substance has increased and become so solid that the patient can move his leg from side to side. I have not yet, however, allowed him to bear his weight upon it without the assistance of crutches. M. M. Chapillon and Bertrand are witnesses of the truth of what I have asserted.— *M. Coutavoz. Mémoires de L'Académie de Chirurgie, vol.* 6, *page* 23.

CASE XVIII.

An officer, at the siege of Douai, A. D. 1710, received a wound from a small shell, (Obus) on the outer and middle portion of the leg, four inches long and two wide, shattering the bones of the leg and foot. In an ineffectual effort to rise, he so displaced the broken bones, that the foot became everted and the leg turned inward. 'On seeing him soon after,' says M. Cannac, 'I was truly astonished at the violence which both the leg and foot had suffered; and seeing the extent to which the bones were shattered, without however injuring the bloodvessels, I considered amputation the only means of preserving life. The patient requested me to remove a large portion of the tibia, which protruded from the upper angle of the wound and greatly annoyed him by its points. As I arrived at midnight, I deferred amputation until morning, to have the benefit of a consultation; yet to gratify the patient, I applied a tourniquet and removed the obnoxious fragment. To accomplish this, I had to extend my incisions far up the leg. Having removed the large fragment, I found many smaller pieces lying loose behind it, and took them away. *The patient was greatly relieved by what I had done, yet soon after, the leg and foot, below the wound, began to swell so much, that I determined to make deep incisions therein,* having no fears, as the leg was destined to amputation. *In consultation, amputation was unanimously agreed upon,* but this advice was overruled by the patient and his brothers. Suppuration came on in five days. In six, the town capitu-

lated. *This officer, after a long time, recovered with a straight leg, only two inches shorter than its fellow, notwithstanding the injury he received in being conveyed to Cambrai immediately after the capitulation.—M. Cannac, Mémoires de l'Académie de Chirurgie. Vol.* 6, *page* 174.

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CASE XIX.

In the month of August, 1694, I was called to St. Croix to see a farmer, who had fallen under his wagon, the wheel of which had passed over his left leg, breaking both bones and causing a wound in the middle, which nearly encircled the limb, leaving only about two fingers' breadth of sound integuments. So great was the contusion of the muscles, that there seemed hardly room to hope that the limb could be restored. I got ready however my apparatus, which consisted of dossils of dry lint, strips of linen folded, 18 tailed bandage, splints, long compresses,* and a roller, to be applied in the form of the figure 8, to the foot and lower part of the leg.

Having made his bed, I had him placed upon it by one of my apprentices, while I myself supported the leg.

I now arranged the limb in such a manner, that the foot was about four inches higher than the knee.

Two assistants, without raising the limb from the pillow, made extension and counter extension, while with my hands I pushed the extremities of the bones, in order that they might reassume their proper relation: this was easily done, and easier to be seen, the bones being entirely uncovered. *In reducing them, I neglected none of those important points which should always be observed in the reduction of a fracture. This was proved by the cessation of pain, which, up to that time, had been excessive;* by the straight line presented by the edge of the tibia, the more perceptible

* '*Compresses Longuettes.*'—These are formed of a piece of linen, the length of the limb, and about three inches wide, when folded four times.

from this bone being bare; and finally, by the proper relation existing between the knee and great toe.

The fact that the tibia was uncovered, rendered any comparison of this leg with the sound one unnecessary, as the ends of the bone were seen to be in apposition, end for end.

I dressed the wound, including the portion of bone uncovered, with dossils of lint dipped in brandy; the compresses were also moistened with it; and the 18 tailed bandage in rough wine.

Two entire months passed without any change in the limb, during which time, M. Doucet saw the patient a number of times, and urged me, continually, to amputate it, since it was in such a bad condition and excessively tumified: the suppuration, also, was great, and the fragments of bone, which seemed about to separate, quite large.

But, as the man was strong and vigorous, and had good courage, the benefit of country air, and the season was favorable, I persisted, and did not despair of healing the fracture, notwithstanding the bad symptoms, although I confessed that many months, without determining their number, would be requisite.

After two months, I pulled away the whole of the inferior end of the tibia, which extended to within about two fingers' breadth of the ankle joint:* the fragment was four fingers' breadth long, and comprised the whole thickness of the bone with the medullary canal: a large cavern was left in its place. Fortunately, the fibula had united without any perceptible exfoliation. This was, therefore, a great assistance to the patient, as it acted like a splint, and kept the leg of its proper length.

After the separation of the fragment, I dressed the wound only once in three days, instead of every day, as I had before done, the bandages being still moistened with brandy: and nothing wearied by the length of time during which I dressed it, I continued my attendance on it until it was happily cured. *The callus which formed in place of the bone removed, was so strong and firm, that this man walked with ease, and without the slightest lameness:* but this was only after a year of careful dressing, which I

* Had a portion of bone been sawed off, so as to have somewhat shortened the leg, is it not probable much might have been gained by it? W. J. W.

practiced daily, for two months, then every three days, and gradually less frequently; until after a while, the patient did it himself, during which time I called to see him only at my leisure.—*M. de La Motte—Traité Complet de Chirurgie. Vol. 2, page 575.*

CASE XX.

Some time after the cure of the last mentioned patient, M. Des Rosiers, and I, had a fracture to treat nearly similar, and produced in the same manner. The patient was a farmer of the parish of Magneville. We carried him to Valogne, that we might attend him more conveniently.

The fracture of the tibia was double. The superior, at the commencement of the upper third of the tibia; the inferior, at the junction of the middle and lower third. *The fragment, thus separated, was five or six inches in length. There were no splinters, and the wound in the soft parts was sufficiently extensive to allow us to see this portion of bone completely bare. So great was the degree of laceration and contusion, that we determined, after proper reflection, to divide with the scalpel the membranous parts which united this portion of bone, thus separated, from the rest of the tibia, and remove it entirely, rather than leave it to be thrown off by suppuration, which would have required a long time, and have much retarded the formation of callus, which we were confident would commence as soon as this obstacle should be removed. That this occurred was perceptible to the eye, as soon as suppuration was freely established.*

In this manner, the limb, which we looked upon as affected with a most severe and terrible fracture, grew strong, daily, so that, after seven or eight months of dressing, the wound cicatrized, and the tibia united by the aid of a good and strong callus, which was formed in place of the bone which we had removed: nor was this leg, so dangerously wounded, different from its fellow, either in thickness or length: to this effect, the union of the

fibula, which took place in thirty days, was of great assistance. This union kept the leg of its proper length and shape: this good result would not have occurred, if both bones had lost an equal portion of their substance; since, in this case, nothing could have prevented the ends of the bones from drawing together, which, without doubt, the muscular contractions would have caused. In a case * of this kind, amputation would be the appropriate remedy, since the limb would be useless to the patient from its shortening, and, indeed, an incumbrance to him. *Neither of these patients, however, for the reason that I assign, have been rendered lame, nor have they suffered the slightest inconvenience from the injury of which they have been cured. — M. de La Motte. Vol. 2, page 579.*

CASE XXI.

In the month of February, 1709, M. Des Rosiers and myself were called to see a young man in the parish of Ivetot, who had received a fracture of the lower end of the right leg, two inches above the joint. So extensive was the wound, that the ends of both bones projected two inches, or thereabouts. *After putting him to bed, we endeavored, at first, to reduce the extremities of the bones, which was one of the most difficult undertakings we ever tried:† not only on account of the great force we were obliged to use, but for the fear of tearing away the foot, so small was the quantity of integuments remaining, and so weak did their connection seem. Indeed, M. Des Rosiers repeatedly called on me to*

* The case treated by Coutavoz, No. 17, shows, that the case here described, might have been remedied by perpetual extension. See, also, fragment from La Motte, Letter K. W. J. W.

† *Note by Sabatier.* It seems as if a part of the difficulties, which were presented in this case, would have been avoided, if the wound had been dilated. This omission may be noticed in all the cases of Complicated Fractures mentioned in this work, where the bone protruded. Incisions practiced on such occasions, have not only the advantage of rendering reduction more easy, but they facilitate resolution in the part, and give it a more favorable appearance.

moderate my extension. We succeeded, finally, by means of an elevator, which we used like a lever; and by pressing the end against one extremity of the tibia, the other was sufficiently separated to be replaced.* Without this assistance we should never have succeeded, so much had the tendons and muscles shortened the limb, during the seven or eight hours since it was fractured.

* * * * * *

In this manner we dressed this large wound, hoping that these anodyne remedies, which were also emollient and discutient, would relax *the muscles and tendons, which were much swelled, and tense.* Such was their effect, that after four or five days, there remained no tension, *but the fever coming on the seventh or eighth day, the pains increasing, and the whole limb being swelled and excessively inflamed,* we made use of a discutient and resolvent poultice, applied to the whole leg. The bandages were moistened with wine.

These means, far from fulfilling our wishes in discussing the humor, caused it to fix itself in several places, *where abcesses of some size formed: one was situated at the middle and inner side of the leg, and another at the upper and outer part.* These we opened at the proper time, and they suppurated freely, and for a long time, before they cicatrized.

What was very extraordinary, the fractured side became completely paralytic, from the head to the foot, the other side became convulsed. We were in hopes that the long continued suppuration might cure this unfortunate patient. This, however, did not occur, a sone side remained palsied: the convulsions,*

* Cases No. 9, 10, and 21, exemplify the baneful effect of tension in the direction of the length of the limb, and show us how carefully we should guard against it. We observe the same circumstance in incipient necrossis, and in all inflammations of the bones of the limbs, as the muscles are then permanently contracted, and are restored to their natural state only when the bones are relieved from disease. Much has here been said of the injury resulting from the rough bones irritating the soft parts, but, do not rough ends of bone produce similar injury when so placed as to unduly press upon each other? It will be observed that the symptoms in all our cases have become mild, as soon as the bone has been shortened.

See Cases Nos. 1, 3 ,4, 7, 8, 10, 11, 12, 13, 14, 17, 18, 20, 23.

however, ceased, in proportion as the fracture healed, which was in about two months, or two and a half. No perceptible exfoliation occurred, although, as I have said, the bones were protruded through the flesh, and shot by each other more than an inch.—M. de La Motte. Vol. 2, *page* 581.

CASE XXII.

John Nestor, doctor of physick, Richard Hubert, and I, went together to visit a patient at the place of the Frier Minorites. Wherefore, intending to pass over the Seine within sight of the place, I endeavoured to make my horse take boat, and therefore switched him over the buttocks. The jade, madded herewith, so strucke at me with his heels, that he brake both the bones of my left legge, some four fingers breadth above my ankle. Then I, fearing some worse mischiefe, and lest the jade should double his blow, flew back, and as I fled backe, the broken bones flew insunder; and breaking through the flesh, stocking, and boote, shewed themselves, whereby I felt as much paine as it is creditable a man was able to endure. Wherefore I was presently carried into the boate, that I might be carried to the other side of the water to be dressed, but the stirring of the boate as they rowed, almost killed me with bitternesse of paine, for that the sharpe fragments of the bones were rubbed against the flesh, which lay next them. Being ferried over, as I was conveyed into the next houses, my pain was much encreased, whilst lifted by the hands of divers persons some while up, another downe, sometimes to the left side, otherwhiles to the right, with my whole bodie and all the parts thereof. When at the length, I was layd upon a bed, I was somewhat freed from the bitternesse of my paine, and had time to wipe off the sweat, which ranne downe over all my bodie. Then was I dressed with such a medicine as the time and place would afford; we composed it of the white of an egge, wheat floure, soote of a chimney, and melted butter. For the rest, I intreated Richard Hubert that he would handle

me as if he knew mee not, neither that moved for love of me, he should remit any of the severitie of art, but chiefly that he should stretch my foot straight out and if the wound were not sufficiently wide that hee would enlarge it with his incision knife, that so hee might the more easily set the broken bones in their due place; that he would with his fingers, (whose judgment is farre more certaine than the best made instruments) search whether the splinters which were in the wound were quite severed from the bone, and therefore to be taken forth; that he would with his hand presse forth the blood and the clods of blood, which were in a great quantitie concrete at the mouth of the wound. That he would bind up and place my legge in that site and manner as he thought best.

* * * * * *

In the beginning of my disease, I used so spare a diet that for nine daies, I ate nothing each day, but twelve stewed prunes, and six morsels of bread, and drank a Paris pinte of sugred water. * * I was purged when need required with a bole of *Cassia* with rubarbe. I also used suppositories of Castle soape to make me goe to stoole, for, if at any time I wanted due evacuation, a preternaturall heat presently seized upon my kidneyes.—*Ambrose Paré, Treatment of his own Case, page* 582.

CASE XXIII.

Joannis Sculteti Observatio LXIV.

De majori fosili contriti cruris, serrâ, tres digitos decurtato, illaeso incessu, curato.

Gulielmus Bernardi, annorum quadraginta quinque, cerevisiae bajŭlus in aggere Harlemensi, portaturus vas in cellam, ex cadi casu, crus in plura quam viginti fragmenta contritum reportat. Ad quem decimâ quintâ Aprilis 1650 vocatus, deplorandam aegrotantis deprehendo conditionem. Collectis animi viribus operationi me accingens, attritum crus per famulos apprehendi curo. Et ista fosilis majoris portione, quae ad minimum trium digitorum latitu-

dine eminebat foras, serrâ ablatâ, residuum convenientibus spleniis, fasciis, et medicamentis, probe devinctum tam feliciter restituimus, ut hoc pede, sine claudicatione in hodiernum utitur diem.—*Opera Joannis Sculteti Renovata et Aucta Amstelodami Ao* 1672.

CASE A.

On the ninth of August, 1816, an insurrection occurred at the Massachusetts State Prison, in which thirteen convicts were severely wounded, principally by firearms. Of this number, Elijah Sloane, aged twenty-four years, received a musket ball, in the upper and outer part of the leg, just below the knee, which passed obliquely downward, through the limb, causing a fracture of both the tibia and fibula.

The prison records state, that Sloane died on the morning of the twenty-fourth day, of the same month; and that '*symptoms of inflammation and irritation,* which occurred immediately after the wound, made amputation inexpedient.*'

In an examination after death, several pieces of bone were found driven deep into the muscular, nervous, and vascular tissues of the limb; in consequence of which injury, these tissues had become so inflamed and swollen, as to roll out from under the unyielding fascia, when divided longitudinally, and to present the appearance of a blackish, and half disorganized mass of flesh, es-

* It should be here observed, that this wound was inflicted at 6 o'clock, P. M., and that two of the patient's comrades received wounds which were regarded, at the time, as more dangerous, and requiring more imperatively the care of the surgeon of the prison, (the late Dr. Josiah Bartlett, well remembered by the older Fellows of this Society, as an able man in his profession;) so that Sloane was not attended to, until some hours after he received the wound.

Of the convicts just alluded to, one was shot through the right side of the chest, the ball entering near the spine, and emerging near the edge of the sternum; the other had a ball pass through the root of his neck, from immediately above the superior angle of the scapula, to a point an inch above, and just outside of the clavicular attachment of the sterno cleido mastoid muscle. This wound was attended with profuse arterial hemorrhage. Both these men, however, recovered.

W. J. W.

caping, as it were, from the embrace of a powerful press. A perfect solution was thus made manifest of the severe symptoms, and fatal tendency of this case, even from its outset.

CASE B.

Some years since, a young man of feeble constitution, named Bruce, received a wound in his left thigh, under the following circumstances: — He was passing through Park street, Boston, whilst an infantry company were firing, on parade, near the great elm tree on the common. He fell, at the moment, and was unable to rise again.

On seeing him, soon after, I found that a ball had passed through the integuments of the thigh, a hand's breadth above the patella. By bending the leg forcibly upon the thigh, the course of the ball was found to be, into the knee joint. There was no hemorrhage, externally, nor was there great pain at the time.

Neither the patient, nor those about him, could be made to realize the great danger of the case. I, however, advised immediate amputation, as the only means of preserving the patient's life. My advice was disregarded, and the opinions of other medical men requested in consultation.

In about six hours, symptoms of the most threatening kind were ushered in, by a chill, and in four hours more, at the patient's most earnest entreaty, I amputated his thigh, with but little expectation of benefit. The operation was completed in little more than a minute. The skin came into nice and even contact, over the divided femur, and the patient was speedily placed in bed, with the loss of but little blood. He spoke incoherently, before being removed from the table. The bad symptoms continued and became more and more aggravated, for about fourteen hours after the amputation, when he expired.

On examining the limb, the ball was found to have split off one of the condyles of the femur, and produced great inflammation and effusion of blood in the joint. W. J. W.

CASE C.

About eighteen years since, a son of Capt. Treadwell, of Ipswich, county of Essex, while splitting wood, near his father's door, received in the calf of his leg, near the ham, a charge of pigeon shot, from a gun in the hands of his brother, at a distance of about forty feet.

On my first seeing the patient, not far from twelve hours after the accident, the whole limb, from the knee downward, was swollen, elastic, and lacking its natural warmth and feeling. No pulsation could be felt in the arteries about the ankle and foot. The capillary circulation was peculiarly languid; the vessels turgid and containing blood of an uncommon, dark hue. The knee was tender to the touch, and motion of the joint gave great pain. Immediate amputation was advised and practiced. Delirium commenced while the patient was being placed on the table to undergo the operation. On cutting through the flesh, it was found, that the common sheath of the vessels was already gorged with lymph, and this appeared to be fast extending upward. The operation was quickly done, the arteries secured, and the dressings applied; after which he was placed in bed, and carefully nursed. The delirium and other bad symptoms gradually subsided,* and he recovered in due time. On dissecting the parts, the popliteal nerves and vessels were found to be perfectly riddled by the shot having passed through them. Seven shot were found to have penetrated the knee-joint and remained loose therein.

In this case, I doubt not that gangrene had already commenced, and except for the amputation, that death must have ensued in a few hours. W. J. W.

* Les effets de la commotion, loin de s'aggraver, diminuent et disparaissen insensiblement après l'operation.—*Baron Larrey. Vol.* 2, *page* 484.

CASE D.

Mr. Edward Cutter of Somerville, forty years of age, and of temperate habits, was kicked by a horse, three inches below the knee. One of the calkins of the horse-shoe had here penetrated the tibia, and produced a very oblique fracture. At this spot, and here only, were the fascia and soft parts much injured. Two splinters, each more than a couple of inches long, of the compact shell of the tibia were removed, together with some of its cancellated structure. The fibula was sound and entire. The wound was dressed with the mildest applications, no attempt ever being made to approximate its lips. Neither splints, bandages, nor apparatus of any sort were used, at any time. An elevated and easy posture for the leg, rest, spare diet, and a moderate purge, daily, for the first week, constituted the whole treatment. Under this simple management, the wound cicatrized in eighteen days, with only slight superficial suppuration. Nothing untoward occurred to retard the cure, which was completed within forty days.

W. J. W.

CASE E.

March 7, 1840, Edward L. Heath, a convict in the Massachusetts State's Prison, about twenty-eight years of age, and of sound constitution, suffered a compound, not comminuted, fracture of the right leg, in consequence of a block of granite falling upon it. The upper fragment of the tibia protruded through the skin, about five inches below the knee. There appeared to be much laceration of the fascia, as evinced by the looseness of the lower fragment of the tibia, and the presence of a large cavity, reaching nearly to the inner ankle, filled with venous blood. The bones were easily replaced in apposition. A free counter opening was made near the inner ankle, through which blood and serum found a ready exit, as soon as they were effused, into the wound. The limb was laid on its heel, elevated about twelve inches above the body.

The foot and leg were kept in their relative positions and supported by splints and dressings as described in the case of William Tyler. Neither suppuration nor other accident occurred to retard the progress of his cure. On the third day of April, he was able to raise his leg from the bed. On the nineteenth day of the same month, he attended chapel service, and was discharged, able to labor the next day, having been forty days in the hospital.

W. J. W.

CASE F.

Not far from fifteen years ago, I saw, in consultation with the late Dr. Edward Frost, Mr. Jonathan Bullard, of Wayland, who, three months before my visit, had broken his leg. The fracture was compound, a sharp point of the anterior edge of the tibia having slightly perforated the skin. The bones, however, were not shattered, and the soft parts were not contused nor extensively lacerated. The bones were replaced with ease; and the lips of the wound were kept in contact. After a while, suppuration took place, and the matter, not having a dependent outlet, and being pent up by the fascia, burrowed and penetrated deep, into and among the different textures of the limb. This state of things was followed by loss of appetite, thirst, emaciation, sweatings, and diarrhœa. There were also well marked incipient sloughs upon the shoulders, heel, and sacrum. The question proposed for my decision was, whether amputation could save the life of the patient thus debilitated. I advised that the limb should not be removed; but that a large and free counter-opening should be made by the side of the fibula, near the ankle, to allow exit to the pent up matter. Accordingly, I made the proposed opening, cutting deeply and with great success, as about two pounds of pus were discharged at once, and an outlet obtained, through which the matter, that formed subsequently, had a ready means of escape.

All the bad symptoms forthwith subsided, the appetite returned, and restoration to health was rapid. W. J. W.

CASE G.

By command of the King, I went to visit Charles Phillip of Croy, Lord of Auret, who had long suffered from the effect of a compound fracture of the femur. 'The thigh bone was broken long wayes and side wayes, with many splinters of bone, whereof some were plucked out, and others remained sticking fast in. He besides also, had an ulcer in his groine, which reached to the midst of his thigh, and many other sinuous ulcers about his knee. All the muscles of his thigh and legge were swollen with a flegmaticke, cold and flatulent humor, so that almost all the native heate of those parts seemed extinct. All which things being considered, I had scarce any hope to recover him, so that I repented my coming thither. Yet, at length, putting some confidence in his strength and prime of youth, I began to have better hopes. *Therefore, with his good liking, first of all, I made two incisions, so to let forth the matter, which, lying about the bone, did humect the substance of the muscles. This had happy succesee, and drew out a great quantity of matter.*' * * * * *

'To conclude, his fever and paines being assuaged, his appetite restored by feeding plentifully upon good meates, according to his strength, he in a short time became more lusty; and lastly, by the singular mercy of God, recovered his health perfectly, but that he could not very well bend his knee.'—*Ambrose Paré. Page* 431.

CASE H.

A mason fell, from a scaffold, a distance of more than thirty feet, and suffered a compound fracture of the thigh, in consequence of a block of stone falling upon it the same distance. Although the great injury to the soft parts, as well as the extensive splintering of the bone, seemed to indicate amputation, yet I determined to try to save the limb. With this view, I placed the patient close

upon the edge of a bed, made smooth and even, so as to facilitate the dressing. I then folded a square piece of linen in form of a cravat, placed it round the thigh close to the groin, tied the corners together, and gave it in charge to an assistant, to serve as a counter extending power. I then directed extension to be made, by a second assistant, grasping, with both hands, the thigh just above the knee, while a third aided him by drawing down the foot. I executed this manœuvre with the view of straightening the limb, and of placing its parts so that I might, with accuracy, make my incisions of dilatation, and that the patient might be supported and kept from injurious efforts, rather than for the purpose of extension. I next thrust my finger into the wound, using it as a directory, and thus divided all the parts which had suffered laceration, both above and below. I sought for all membranous parts, and divided them. In a particular manner, I sought out and divided the fascia lata, both transversely and longitudinally, and in a number of places; and I aver, that this is the only way to prevent such inflammation, and swelling of the muscles, as would otherwise produce such tension of the whole limb, as to lead to strangulation, or to the most fatal collections of matter.

Having finished my dilatations, covered the ends of the bones with lint and strips of linen, for the purpose of protecting the soft parts from the irritation of any of their sharp points, and reduced the bones, so covered, to their proper places, I laid the limb in a proper situation, intending so to keep them, until any exfoliations which might occur, should come away. At the third dressing, I removed all the lint and strips of linen which I had placed over and about the ends of the bones, and I found they had much assisted in keeping the parts in apposition. In lieu of the strips of linen, I now substituted large dossils of lint, dipped in brandy. The external dressings were smeared with common digestive, mixed with brandy; and these were covered and supported by suitable compresses and bandages. * * * *

—*J. L. Petit.* *Page* 172.

CASE J.

Here we can succeed only by proper incisions and dilatations; by the use of such means we may ensure success, by preventing the formidable symptoms of swelling, suppuration, and burrowing abscesses, which, otherwise, would divide the parts in sunder, and require many counter openings. All such incisions should be made with great judgment and care, and should penetrate quite to the sound parts of the shattered bone. In no other way can we decide what fragments may reunite with the body of the bone, and what should be considered as foreign bodies, dissected from their adhesions, and removed. Between the naked ends of the bone, and the soft parts, we should place dossils of lint, and so continue to dress the wound, until all swelling has subsided, and all loose fragments or shivers of bone have been discharged. Almost all the cases which I have witnessed, where deep incisions were neglected, have ended in gangrene and death; while those patients, in whose cases, free and judicious dilatations have been practiced, have escaped the direful and dangerous symptoms above alluded to, and obtained an easy and happy cure.—*Martinière. Mémoires de l'Académie. Vol* 11, *page* 17.

CASE K.

* * * * I took great pains the first two months of treatment, to observe if the broken leg were of the same length with the other, in order to avoid the blunder of the two old surgeons, to whose care the duchess of Ventadour had committed her coachman; this man's leg was broken near the middle, with a large wound. I was called in, three weeks after the accident. The wound was then granulating well, and the patient in good health, but the limb was full four inches shorter than the sound one, in consequence of the blindness of these surgeons; they had placed a board at the foot of the bed, against which his foot

rested, in order that he might not slip down in his bed; the effect of which was, that the ends of the tibia overlapped each other to the extent which I have mentioned, without these surgeons perceiving it in the slightest degree; although it struck me at once, even before the bandage was removed; I reduced it, however, gradually in the course of the day, to the same length with the other. The limb recovered perfectly, without any inconvenience, from the second reduction, from the great care which I took in placing the bones perfectly even.—*La Motte, vol.* 2, *page* 374.

CASE L.

In order to reach and extract, without violence, a ball deeply buried in the thigh or nates of a stout man, extensive and frightful incisions must be made, and surgery repudiates that man who fears or hesitates to make them, whenever there be occasion, and the operation is practicable, without wounding the trunks of the large nerves and blood vessels. Such incisions should be made in every direction through the fascia lata, as well as through the sheaths of the muscles, and no sinus in the course of the wound should be left unopened. In the leg and fore arm, we should not spare the aponeuroses, which having furnished an envelope to the whole body of muscles, subdivide themselves into sheaths embracing each muscle by itself. Foreign bodies are often found impacted within their embrace, and it is as necessary to divide these membranous expansions for the prevention of mischief as for the easy extraction of foreign bodies. All such incisions should penetrate quite to the sound ends of the fractured bone, so as to afford ample room for the removal of loose portions of bone or other foreign bodies.—*Baron Percy, Manuel du Chirurgien D'Armée. Page* 149 *and* 159.

ARTICLE V.

THE FACTORY SYSTEM,

IN

ITS HYGIENIC RELATIONS.

BY JOHN O. GREEN, M. D., M. M. S. S.

[Read at the Annual Meeting, May 27, 1846.]

Mr. President, and Gentlemen of the Society,

The silent lapse of time, wafting us swiftly onward to the ocean of Eternity has again brought us to this Anniversary. We have assembled from all parts of our cherished Commonwealth, to fill the honorable offices of this time-hallowed Society, to interchange our mutual congratulations on its achievements and prospects, and to gather from all the associations which cluster around it, fresh vigor and zeal and ability for the arduous duties, the solemn responsibilities, the unobtrusive, every day engagements of a Physician's life. I see, before me, the youthful student, flushed with college honors, just entering the arena of professional strife, the recent graduate, full of the responsibility of his first patient's fate, the middle-aged,

in the full tide of professional success, scarce able to lay aside his ceaseless toil for this brief hour: the gray-headed veteran, whose half century of honors and usefulness constitutes his smallest claim to rest and retirement where he is best known. Among the Fellows of this Society, I behold, around me, men high in the walks of science, in the offices of our country, in the confidence and respect of the community, the teachers of my youth, the counsellors of my riper years. I need not say, then, that I meet all of you with a distrust of my ability to do justice to this office and occasion, which would well nigh overwhelm me, unless I could rely with confidence on your utmost candor and kindness.

If there be any one entitled to indulge some self-gratulation on the discharge of high duties, or at liberty to express an honest pride in the accomplishment of his youthful hopes, it is the successful Physician. How few have any idea of the toils and privations to which he is subject, his constant witnessing of misery, his daily task, however arduous, yet never known to be finished: his nightly rides exchanged too often for a sleepless, anxious pillow. How few can imagine the amount of work he has to perform, and how extremely small is the number of those, who, during his professional life, are willing to take into consideration the exertions which it cost him to acquire the elements of his science. Among ourselves, then, who have a just appreciation and experience of all this, I appeal to you whether there is not a satisfaction derived from the consciousness that we have thus struggled to secure

knowledge, and expended time and health and money to prepare and afford relief to the sufferings of our fellow-men, which none of us would forego. There is no one who has thus acted and suffered, who does not feel pleasure in appealing to the manner in which he has discharged these high duties, as to an ample earnest of the steadiness and devotion of his future professional exertions, and as an evidence of his continuing stability and faithfulness in the trusts which may be confided to him.

I have alluded to the extent and comprehensiveness of our association, with its representatives in every city, town and village in our Commonwealth, bearing with them, in their daily walks, the sound wisdom, the practical sagacity and strong conservatism which almost insensibly are imbibed from a State institution under such guidance as this has been for many years. Equally co-extensive must be the interests and tastes of its many members. If, then, in the character of these annual effusions have often shone forth, in bright relief, the thoughts and considerations with which the speaker has been most familiar, and if, on the present occasion, you are invited to accompany him to his own immediate home and neighborhood, with the eye of a Physician and Christian philanthropist, there to observe what is most interesting, I cannot feel that I have misunderstood your former sympathy, or miscalculated upon your present attention.

Within the last thirty years a new element has been introduced, engrafted and developed upon the

enterprise and resources of our own and the neighboring States of New England. We allude to the establishment of Cotton Manufactures, with a rapidity and to an extent truly surprising. That I have not misjudged the interest which must attach to all the considerations, social, political or economical, appertaining to this subject, will appear from the single fact that the capital invested in Cotton manufactures in Massachusetts alone amounts to $17,739,000, and the actual number of persons employed in the cotton mills is 20,170.

In former times, when disease and death were supposed to be the work of an unchangeable and, perhaps, a capricious Providence, there was little motive to inquire into their causes, for no knowledge could avail to avert or modify them. In later days, however, we believe that there is much to be learned in this matter: that the study of the laws of life has claims upon the attention of Physicians that are neither to be postponed nor resisted. If the higher aim of Surgery be the preservation, rather than the amputation, of the diseased limb, then the efforts of the Physician in the prevention of disease, rather than in its cure, deserve the higher appreciation. The above are some of the considerations which have induced me to propose to you some reflections upon the *Factory system viewed in its hygienic relations.*

A vast deal of misapprehension and distrust has been created and fostered by assuming a similarity between this class of people in England and America. In all their hygienic aspects there could hardly be a

more striking contrast. But to render this intelligible, I must, in some detail, sketch the history of Factory labor on the other side of the Atlantic. While it shows the unrelenting inhumanity of avarice, it displays the difficulties with which philanthropy and benevolence must struggle, before they can effect their noble ends.

The system of employing children as factory laborers was the result of Arkwright's inventions. His looms took manufacturers out of the cottages and farm houses, and assembled them in Derbyshire, Nottinghamshire, and more particularly in Lancashire, where the machinery was used in large factories, built on the sides of streams capable of turning the water wheel. There was an immediate demand for hands, and children were found to be best adapted to the work. The custom instantly sprang up of procuring apprentices from the different parish work-houses of London, Birmingham and elsewhere. Many thousands of children between seven and fourteen were thus carried to the north. The horrors of this apprentice system appear to have been dreadful. It is said in one instance, an agreement was made between a London parish and a Lancashire manufacturer, stipulating that with every twenty sound children, one idiot should be taken!

The violations of nature's laws reached such a height that these outrages were taken in hand by Nature herself, and pestilential fevers became alarmingly destructive. The public was roused, and a board of health was instituted in Manchester, and made its

report in 1796. In 1802, the late Sir Robert Peel introduced and carried his first bill for the relief of the apprentices. It did relieve them, but steam being now applied to manufactures, the site of factories was removed from the sides of streams to towns and populous districts, where labor could be readily obtained and where apprentices were an useless incumbrance. The bill afforded no protection to the children now employed, and in 1815 Sir Robert Peel proposed a second measure which was not carried till 1819.

The actual nature of factory labor was as follows. I quote from the Medico Chirurgical Review.

It was in nearly all the cotton mills of Lancashire and its neighborhood, excepting Saturday, from thirteen to sixteen hours a day, inclusive of one hour or less, *nominally* for dinner. Many of those subjected to such labor were children of nine, eight, seven and six years of age, and some even under six. The children continued constantly at work so long as the machinery was in motion, during which time they were not permitted to sit down, or to leave the factory. They often complained (naturally enough one would think) of fatigue and aching limbs: in this state of exhaustion toward the close of the day, they were beaten by the overlookers, or even by their own parents, that blows might supply the deficiency of strength. In most cotton factories, during the greater part, and often during the whole of the time nominally allotted to dinner, the children were occupied in cleaning the machinery: no time was allowed for the breakfast or afternoon meals, which were snatched in

mouthfuls during the progress of uninterrupted labor. It appears, moreover, that the temperature in many mills was from 75° to 80°, in others from 80° to 85° or even 90°.

Such was the state of things when in 1819, the twelve hours bill was carried. In 1825, Sir John Hobhouse obtained an act which limited the labor of persons under sixteen, to sixty-nine hours in the week, twelve on five days and nine on Saturdays. In 1831, it was somewhat improved by the prohibition of night work for all under twenty-one, and by the advance of the ages entitled to protection from sixteen to eighteen years.

By the modern factory laws of England, no child under nine years of age is permitted to work at all: and before thirteen it can only be employed for nine hours a day. But here again, the necessities or the cupidity of parents, it would appear, are continually inducing them to misrepresent the ages of their children; so that it has therefore become desirable to discover some test by which the capability of the child may be determined without a knowledge of its age. A standard of height has been adopted by the legislature for the purpose, but upon grounds which physiologically considered, are very erroneous, as the tallest children are often the most weakly.

It is not to be concealed that a vast deal of angry discussion has taken place as to the reality of the mischief inflicted by the long hours and unremitting exertion required by the English factories and spinning mills, rendering the ascertainment of the

truth a matter of some difficulty. To enter deeply into this, however, would lead us into too great digression, and we must content ourselves with saying that the importance of this subject upon the other side of the water, and the weight of its accompanying evidence, may be estimated by my naming, as some of the witnesses before the commissions alluded to, Drs. Baillie, Pemberton, Tuthill, Farre, Blundell, Elliotson, Sir Gilbert Blane, Sir Astley Cooper, Sir Anthony Carlisle and others.

It would seem that a very satisfactory if not an unerring test might be found in the Sanitary Reports presented to the British Parliament, and by the inquiries of Messrs. Ure, Villerme, Noble and others. If those who contended that the hours of labor were not too long either for children or adults, could have produced evidence to show that among operatives, the average of life was equally high as among the apparently more favored classes, there would have been an end of all argument. While, had the result proved different, the system of labor might justly have been deemed oppressive in the precise ratio in which the mortality among the operatives exceeded that among the wealthier countrymen. Now in a most valuable contribution to Hygiene, made to both Houses of Parliament by direction of the Queen in 1842, it appears that while in Manchester, the average age of death among professional persons and gentry and their families was 38, that of mechanics, laborers and their families was only 17. A like difference is shown in the country district of Rutlandshire,

and so far as investigations have been made in our own country, the results seem to be analogous. In a very satisfactory Report, presented in 1844 to the Counsellors of the Massachusetts Medical Society, by Drs. Fisher, Jarvis and Holmes, it is stated that the Committee had obtained an analysis of the ages, and also of the domestic and social condition of 1767 persons, who had died in Dorchester, Massachusetts, within the preceding twenty-seven years; by which it appeared that the average duration of life in the families of laborers, journeymen, mechanics and factory operatives was 27 years 5 months, whilst that of the farmers who own and cultivate their lands was 45 years 8 months.

These truly startling results are, however, greatly modified by carrying our views a little farther. In England, a reference to tables of the mean annual mortality of females in twelve districts of the metropolis will show that the difference in mortality is dependent rather upon the locality, inasmuch as the greatest mortality is at times found to prevail where no factories exist. In Dorchester too, the Committee go on to show that this difference is not chargeable to occupation merely, for it was found most among the little children at their homes, and cannot be caused by the employment of the head of the family.

In the one country, there must be a cause, or causes, connected with the domestic condition or management, to produce this discrepancy:—and in the other, we must be constrained to conclude that the evils which have been presumed to appertain to manufacturing pursuits have been greatly exaggerated:

that no peculiar evils to health and life attach *necessarily* to manufacturing business: and that in so far as factories and other corresponding places of labor interfere with the right conditions of health, they of course lead to the production of disease and the shortening of life: but that these evils appertain rather to their domestic than to their industrial relations. In the prosecution of this subject, these conclusions will, we trust, be abundantly corroborated.

As the type and exemplification of what we mean by the Factory System of New England, we, of course, at once turn to Lowell.——At first view, it will be objected that we have selected by far too favorable a specimen by which to describe a class: that this city has grown up from its very infancy in a few years: that it is rather the result of associated power profiting by all the experience which individual enterprise had hardly and dearly bought in years of unsuccessful effort: with all the modern appliances of machinery and all the modern arts of civilization and comfort.—We grant all this. It is not quite twenty-five years since the first operative was attracted to this place. All the available science and experience of our own and other countries have been concentrated and systematized here under every advantage of combined wealth. But the organic laws of life and health are unchangeable. In this place have been congregated the largest number engaged in the same labor, and it is the only place in our own country where even an approximation can be made to an investigation and analysis of the diseases peculiar to a manufacturing city.

The Lowell system has peculiarities which modify its hygienic character. By far the most striking and conservative that has been superadded to that in other places, is a strict, ever-present, ever-active moral regime. That the strictest observance of the moral laws and the purest elevation of which human nature is capable, are insufficient to secure health to the body, without a simultaneous observance of the organic laws, is too clearly proved by the history of mankind. At the same time, the intimate and inseparable connection between health and morals in all communities calls here certainly for no argument or proof. By a recent writer,* it has been shown with equal clearness and truth, that the "sagacity of self-interest, as well as more disinterested considerations, has led to the adoption and enforcement of a strict moral code. The productiveness of the twelve millions here invested depends," says he, "upon one primary and indispensable condition—the existence of an industrious, sober, orderly and moral class of operatives. Without this, the mills in Lowell would be worthless. Profits would be absorbed by cases of irregularity, carelessness and neglect: while the existence of any great moral exposure would cut off the supply of help from the virtuous homesteads of the country. Public morals and private interests, identical in all places, are here seen to be linked together in indissoluble connection."

Another consideration bearing both upon the character and health of the community of which we are now speaking, is the fact that *we have no permanent factory population.* Careful statistical returns, ob-

* Rev. Henry A. Miles.

tained by the same gentleman, have established that the female operatives in Lowell do not work on an average more than four and a half years in the factories. If the nature of this labor in all countries be the same, and the dangers of moral and physical degradation be inherent in the nature of the employment, which however we deny, we see in the considerations just stated two elements of difference between the condition of the operatives here and abroad which must entirely change its results.

The child, in the one country, inheriting with its birth the constitutional defects developed in its parents, by years of toil and penury and vice, growing up to the age of nine perhaps, upon the scantiest fare, in the squalid cellar in the narrow lane of a crowded city, not only without education, but with scarcely sufficient parental care to attend upon its merely animal wants, then begins its life of constant service, and enters its *permanent dependent factory caste.*

In the other country, the child of parents of robust health and habits of virtuous industry, is trained from its earliest years to healthful exercise, upon abundant substantial food, in a rural home, in a climate perhaps as favorable to longevity as any in the known world, till its mental, moral and physical powers have attained their full development. It then leaves that home, a voluntary exile, with high hopes and bright visions of well requited labor and its sure reward, and spends a limited time, two, four, or six years, and returns again with a consciousness of well discharged duty and the means of promoting its own, and even its parents' future comfort and happiness.

Lest any one should suspect I am indulging in fancy, I must here quote that in 1844, of the 6320 female operatives in Lowell, Massachusetts furnished one eighth, Maine one fourth, New Hampshire one third, Vermont one fifth, Ireland one fourteenth, all other places, principally Canada, one seventeenth. At the same time, the number of operatives in our Cotton mills under fifteen years of age was only twenty-seven.

But we come now to another hygienic agent, in the fact that no persons are employed in these mills who are addicted to intemperance. "Absolute freedom from intoxicating liquors is understood throughout the city to be a pre-requisite to obtaining employment in the mills, and any person known to be addicted to their use is at once dismissed."

In whatever light we may be disposed to view the present state of public opinion upon the subject of temperance, the existence of such a regulation cannot but be regarded as conducing essentially to the public health. Too often, however, in their laudable enthusiasm, the writers on this subject have quitted the strong moral basis on which the abuse of ardent spirits rests. On the precise amount of deaths, produced by their indirect action, our data are especially defective. There is not a disease, so induced, but admits of other causes: and here is an insurmountable source of perplexity in forming any estimate other than mere guess work. The evil, says Dunglison, "resulting from the abuse of ardent spirit, and indeed of some of the simple fermented liquors, in which the spirit is in a state of combination with other substances, is of sufficient magnitude. It requires no amplification.

"To any point that demands correction or modification, the estimate or the language of hyperbole is injurious, inasmuch as it does not induce unhesitating assent. The temperance societies, throughout our land, have rendered important service. *Moderation*, —the never-failing attendant on good sense, has already modified, and will continue to modify, some of the asperities and impracticable parts of their original constitution: unnecessary self-privation and rigor will gain few proselytes, and so far defeat the praiseworthy intentions of many of their founders." But especially is it to be regretted that it should ever assume a party character, than which no garb can worse become so heavenly a virtue. Already have we seen, in the violence of partizan warfare, the fair name of the most moral men and the best citizens wantonly assailed, because they had never seen fit to join in the unholy strife, which has disdained and rejected even the sanction of religion.

It is enough for our present purpose, that a more strictly and universally temperate class of persons cannot be found than the nine thousand operatives in the city of Lowell. No physician, however, in estimating the influence of intemperance from the bills of mortality, has a fair criterion of its real state. In the various forms of fevers, the inflammations and diseases of various organs, in convulsions, apoplexy, palsy, suicide, epilepsy, and even pulmonary consumption, he must often see its effects, if not in their production, certainly in their aggravation.

Much has been said with regard to the proper number of meals, and the interval that ought to elapse

between them. Regularity in their periods ought to be observed. They should be as nearly equi-distant as practicable, and at such intervals that one digestion may be completed before the materials are furnished for another. "Early breakfast," says Doctor Johnson, "dinner as near the middle of the day as fashion, folly, or pride will permit, a pretty hearty tea in the evening, about six o'clock, and no supper, will be found the most salutary code which a physician can lay down." Nothing in factory life could be more closely followed. So also of their plain, substantial and wholesome food. These epithets must of course demand some modification. All we mean to affirm would be, that the dietetic errors of these persons have been brought with them from their country homes. They are here perpetuated, and under their new habits of labor, are more or less prejudicial. Throughout the towns of New England, few physicians could be found ready to defend the disproportionate amount of fat, the bad cookery, and the many indigestible compounds which form the daily routine of common meals.

It has formed no part of my design to go into any minute examination of the various processes of the Cotton manufacture, involving every variety of muscular effort and posture, and every degree of intensity of muscular exertion. The female operatives are engaged universally in a kind of labor which demands a succession of light muscular movements, and are not called on to perform acts requiring undue exertion of particular parts or organs.

They are but little exposed to sudden vicissitudes of temperature, those most prolific causes of disease,

particularly of females in our own climate, owing perhaps to their in-door life and insufficient clothing. The rooms in which they work, are kept of a uniform temperature, and are lofty and well ventilated.

Lastly, their places of abode deserve a passing notice. The houses in which, with very few exceptions, these people live, belong to the capitalists who own the mills, many of whom have displayed a desire to ensure, as far as the state of the private residences can ensure, the comfort of those whom they employ, and they have accordingly built for them a superior description of tenements.

Very many, then, of the circumstances which surround and act upon our factory operatives, are of the most favorable character. They are the most obvious and simple considerations, but nevertheless, the most important, because always at work, and are precisely those common and universal influences which, after all, go to swell the grand aggregate of health or disease in communities.

I have cursorily glanced at the birth and parentage of these persons, their early education and habits, their temperance, their regular hours of rest and of taking meals, their plain, substantial food, their labor, neither too active nor too light, their little exposure to sudden vicissitudes of temperature, their well ventilated workrooms and their comfortable abodes. These circumstances are by no means peculiar to Lowell. Throughout New England they constitute the influences which are to leave their impression, either for weal or wo: and if a long course of years be essential to the development of their effects, it is no part of a true philoso-

phy to overlook or underrate them. We repeat that we consider them as most important elements in the solution of this problem in our own country.

Like every other subject, identified or intimately mixed up with human interests and feelings, this one has proved itself the fertile occasion of very contradictory statements and opinions. One class of inquirers, guided more by overwrought sentiments of humanity, than by unbiassed judgment, have looked upon the introduction of extensive manufacturing establishments as little less than an unmitigated injury done to the bulk of society, "accumulating the fruits of labor within the possession of a comparatively small number of capitalists, to the utter destruction of all health and comfort, on the part of the actual producers of wealth:" whilst another class, regarding the matter under another point of view, and more under the influence of a cool, calculating and selfish political economy, maintain that the extension of manufactures in our country will carry with it the least possible amount of disadvantage to the masses engaged in them. Others, again, more in the desire and spirit of unprejudiced inquiry, have come to intermediate conclusions, believing that, like all other human institutions, more or less of evil may be discovered and foreseen in this, coincidently with very great advantages to mankind as a whole. To one of these classes we trace the assertion that the health of multitudes of these operatives is broken down by long confinement and excessive toil, who, finding their strength failing, return to their homes, leaving behind them no memorials of their sickness and death. To another class

we should attribute the attempt to show that their health is essentially and permanently improved by working in the mills.

While we maintain that many of the conditions of health are as little violated by manufacturing industry, as by an immense proportion of other pursuits, we still believe that factory labor is, on some accounts, injurious. How, indeed, can it be otherwise, when regarded as a whole? Individuals thus employed, do not spend in the open air, on an average, more than an hour or an hour and a half in the twenty-four: and work is resumed almost the moment the meal is swallowed, allowing scarcely any rest for the commencement of a healthy digestion. Causes like these must and do depress, more or less, the vital powers, and induce certainly, perhaps slowly, a lower state of the general health than would exist with the opposite state of things. In all this, however, we have nothing peculiar to the factory system. With the great majority of the working classes, these causes have a general operation. In the case of hundreds of females employed in various occupations with their needles, the same conditions of labor are applicable, and present almost the same exceptionable points as those of our manufactories.

Among the most prominent perhaps of the adverse influences, as must occur to every one, is the too long confinement by the protracted hours of labor, amounting in the case of the mills at Lowell, to an average per day, throughout the year, of twelve hours and eighteen minutes. It is in no spirit of sympathy with a certain class who are seeking to turn the public attention to this matter, that we

would declare ourselves in favor of abridging these hours. On the contrary, nothing can be more ill-judged than these attempts to create distrust and ill-will between the employers and employed, between whom, every thing should be designed to cherish the utmost kindness and consideration. It is an amount of undivided attention, however, which cannot be sustained, week after week, and month after month, without manifest and serious derangement of the general health, whether it be in the study of the clergyman, the counting-house, the court of justice, the halls of legislation, in the cotton mill, or any other work-shop. Sooner or later, in proportion to the powers of resistance, and adaptation of the individual, the citadel must yield and the enemy triumph. How shall we determine the precise amount of labor and exertion, which will prove safe and expedient in each? I apprehend the data which are advanced to establish ten hours are as defective as any. But of one point we may be certain, that as there can be shown to be no occupation which is so purely mechanical, such a complete repetition of the same minute procedures over and over again, with hardly the change of a thought in the mind, yet demanding close and steady attention, this may unravel the great secret of the wear and tear of factory life.

There is, in this business, too, such a nice sub-division of labor, and delicate adjustment of responsibility, from the superintendent in his counting-room, to the lowest laborer in his employ, all admitting of almost mathematical precision in the results of their work, and all under the stimulus of the rivalry of sim-

ilar establishments, and at the foundation of all, such a mighty spirit of commercial enterprise, that the limit of human powers is scarcely suffered to enter into the account. The acquisition of wealth becomes the universal, the all-absorbing concern, and taxes the powers of all to the utmost. No one pauses, or even seems disposed to pause, to ask by what means, or at what cost, are these results obtained? The consideration of the long hours of labor is by no means confined to our factory system. It is no local or peculiar incident, but an evil of great magnitude, if not a national sin.

The over-strenuous exertion of the faculties, mental and corporeal, must inevitably lead to the deterioration and destruction of the living machine. The same cause, to wit, hard work, or rather over-exertion, it is, which makes our fields better cultivated, our houses better furnished, our cottons better manufactured, our machinery more effective, our merchants more rich. Does not all this tell at last upon the constitution, intellectual and corporeal? Have not those of us who live in the midst of this excitement, seen striking proofs of it? I do not speak of mere labor of the body. The fatigue induced by the hardest day's toil may be dissipated by "tired nature's sweet restorer," but not so the fatigue of the mind. Thought and care cannot be discontinued or cast off, whenever we please, like exercise. The head may be laid upon the pillow, but a chaos of ideas will infest the anxious brain, and either prevent our slumbers, or render them a series of feverish, tumultuous or distressing dreams, from which we rise, more languid than when we laid down.

Just in proportion, too, as the operative classes are raised by general intelligence and education, in the same ratio grows the natural and almost universal aim of bettering their condition, that is, of rising a step above their present station, till it becomes an ever-active impulse. It prompts to the highest, yet perfectly voluntary, exertions: it operates insensibly. All the little discomforts of situation, the minor ails of life, and even the premonitory symptoms of the graver maladies, are unheeded: a series of carefully arranged queries (ay, and answered with all candor, too), may only elicit that their general health is improving. But granting that this super-excitement makes no appreciable difference in the bills of mortality, will it be inferred from thence that health and happiness are not sufferers by the collision? Are not whole tribes of maladies thus engendered, which may not materially shorten life, but must render it a burden? Most assuredly. The devastation which is worked in this way exceeds, far exceeds calculation or belief. It is true that overseers and others may be found that have spent their ten, fifteen or twenty years in this employment. May it not be found that toil and care of body and mind have forwarded each of them a step or two, *in advance*, on the path of human existence?

I have deferred, until now, any reference to individual diseases which have been charged to the effects of the cotton manufacture. To this I have been led by two considerations. Although now for many years intimately conversant with a large population of this character, I have left upon my mind only those general impressions which will be scarcely at all satisfactory to a phi-

losophical inquirer after the truth; and in the next place, my whole professional life has been confined to one residence, thus precluding any thing like a comparison of the pathology or mortality of my own city with those of others.

If we look back upon the testimony afforded by the medical witnesses in England upon this subject, we might quote a formidable catalogue. Diseases of the character and class ordinarily comprehended under the term scrofula, seem to constitute the sum of alleged consequences. Dyspeptic symptoms, nervous diseases, stunted growth, languors, lassitude, general debility, prompting to recourse to sensual stimulants, osseous deformities, glandular disease, asthma, consumption. Varicose veins and breaking down the plantar arch are charged to the long standing. The French physicians describe one class of their work people worse situated in a sanatory point of view than the rest, the batters of cotton in the fine mills, whose occupation obliges them to inhale much dust and *flue*. Whether it be the dust contained in the raw cotton, apart from the cotton flue, or this latter itself, which ruins the health of those engaged in the process, the decay of their health is ever certain and an established fact. They complain of dryness in the mouth and throat, and are seized sooner or later, with a cough gradually increasing in severity. The cough is the first symptom of a slow and formidable disease of the chest, which is always relieved on abandoning the work, and altogether cured at its commencement, if the employment be not resumed. The disease, in the progress of its development, assumes all the char-

acteristics of Phthisis, and the medical men in the manufacturing districts call it Cotton Phthisis, and some Cotton Pneumonia.

In contrast to this, I am enabled to append to these remarks a series of tables, deduced from the bills of mortality, for sixteen successive years, which have been kept with a very commendable degree of care. Any inferences from them, however, on many accounts, must be cautiously received, and any satisfactory comparison of the individual diseases is impossible, except with Boston, owing to defects in the registration. In a course of years, however, it is very easy to foresee that such a record will possess interest. The great experiment, which is on trial in Lowell, is to be repeated and extended throughout our country. The evils which will result (and everything human has its evils) are to be met and overcome by the sagacity and perseverance which characterize our countrymen.

It has been most truly said, "Man is not a mere producer; a mere machine. His life or death, his happiness or misery, is much too high an object upon which to place a pecuniary value. He is more nicely made, more wonderfully organized, requires to be guarded with more care from any influence that may surround him to produce disorganization and unfit him for use, is capable of higher and nobler purposes, and has a higher and nobler destiny, and in proportion as in each of these, he exceeds a mere machine, in such proportion ought we to regard his intellectual and moral nature, and the means used to preserve and develop his physical powers, to enable him best to accomplish the great purposes of his existence."

If improvements and changes are ever to be desired in our large manufacturing cities, let them be based, not upon the necessity of such municipal innovations to avert a pestilential havoc of human life, but upon the true merits of the question, the comforts, conveniences and elevation of taste and moral purity thence arising.

But amidst all the responsibilities and pressing duties, Gentlemen, of the profession which we have chosen, the revolution of each year brings with it solemn reflections in the death of our fellows and associates. Since our last anniversary, eight of our number have gone to their reward. To one of them, at the advanced age of ninety-nine, the summons must have been the welcome release, while all the others, save one, have been overtaken in the midst of years of activity and usefulness. With the circle of surviving friends, be it more or less extended, we would drop the tear of sympathy.

Our vocation, by the constant exhibition of human pain and weakness, tends to awaken the best emotions of our nature, to foster the benevolent affections, and to promote all the charities of social life. It affords us continued opportunities of showing kindness to our afflicted fellow-creatures, of manifesting love towards our neighbor. The high and the low, the rich and the poor, are embraced in its ministrations. Hallowed, as it ought to be, by religious motives, it holds out its unspeakable comforts and peculiar benefits, without stint or scruple, to all. "Suffering and danger are the only necessary passports to its kind offices."

Nor should the salutary lessons of its teachings be

lost upon ourselves. We, of all men, should learn how vast a proportion of all bodily pains and infirmities, directly or indirectly, spring from evil courses, the sins of our fathers, or our own unbridled passions. We, of all men, should learn the uses of such sufferings, mercifully designed to recall us from our sense of self-security, and the treacherous slumber of temporal prosperity. Above all, our daily walk, in the constant view of the sickness and deaths of our fellow-men, should remind us that our time is short and uncertain. Happy will be for us, when we are summoned to our last account, the consciousness that our high profession has been practised under the solemn sanctions of Christianity, and its last exercise closed with a reasonable, religious and holy hope.

OBITUARY.

The following members of this Society have died since the last Annual Meeting.

1845.		*Entered the Society.*	*Age.*
June 24,	Henry Tuck, Barnstable, -	1837 - -	40
" 9,	Lemuel W. Washburn, White Oak Springs, Wisc., removed from New Bedford in 1842, - - -	1840, - -	33
Aug. 9,	Paul O. Kittredge, Chelmsford,	1824, - -	65
" 10,	Joseph O. Osgood, Kensington, N. H., removed from Amesbury in 1818, - - - - -	1813, - -	63
Oct.	Josiah Kittredge, Nashua, N. H., removed from Boston in 1837,	1833, - -	60
Oct. 19,	†Timothy L. Jennison, Cambridge,	1803, - -	84
1846.			
Jan. 15,	Jason C. Ayer, Boston, - -	1836, - -	34
Feb. 18,	George Esterbrook, Rutland,	1822, - -	51
May,	†John Williams, Concord, N.H.,	1827, - -	99

† Retired Members.

Erratum.— In the obituary, on page 241, an error has occurred in recording the death of Josiah Kittredge, of Nashua, N. H., who is now living.

TABLE I.

Statement of Deaths in Lowell, Mass., for a series of sixteen years, viz.: from January 1, 1830 to January 1, 1846; containing the amount for each year and number which has occurred from the most prevailing diseases.

	DISEASES OF LUNGS.				FEVERS.						INFLAMMATIONS.								DROPSY.				BOWEL COMP.				
Year.	Whole No of Deaths.	Consumption.	Acute Affection.	Total.	Typhoid	Puerperal	Scarlet.	Bilious.	Inflam'y.	Type not defined.	Total.	Lungs and Chest	Brain.	Heart.	Stomach & Bowels	Bladder & Kidneys.	Liver.	No organ or type named.	Total.	Brain.	Chest.	Organ not named.	Total.	Cholera Inf.	Dysent'y.	Diarrhœa	Colic.	Total.
1830	114	13	4	17	5		14			3	22	5	4	2	5		1		17	5	2		7	3	6	6	1	16
1831	124	16	6	22	5		13			2	20	9	5		5			4	21					8	3			11
1832	184	15	28	43	21	10	7	1	1	4	44	21	7	1	5			2	36	2	1	1	4			8		8
1833	223	18	22	40	34	7	17			2	60	15	5	8	13	1	3	1	46	4	2	1	7	24	8	6		38
1834	225	20	27	47	30	4	12		1	7	54	18	3	1	8	1	1		32	7	3	4	14	18	12	4		34
1835	236	23	22	45	22	2	16	1	1	4	46	14	4		7			7	32	4	5	1	10	12	8	3	1	24
1836	293	22	26	48	27	3	8	1		3	42	12	3	1	4			4	24	5	1	2	8	8	12	6		26
1837	329	45	11	56	26	4	38				68	19	1	5	10	1			36	4		3	7	16	3	4		23
1838	438	65	37	102	32	3	31				86	37	9	2	9	1	3	5	66	10	2	3	15	34	2	12	1	49
1839	362	62	29	91	44		12				56	29	11		12	2			54	8		5	13	15	3	11	1	30
1840	426	40	32	72	26	5	7		1	2	41	29	35	3	8				75		3	3	6	12	47	7		66
1841	456	54	35	89	16	1	43		1	7	68	35	11	1	7		1		55	15		3	18	34	18	8		60
1842	473	70	43	113	43	3	32			5	83	43	8	8	18	1		4	82	23	1	1	25	37	17	29		83
1843	398	73	34	107	38	2	6				50	34	8	5	17	1			65	20			20	35	11	5		51
1844	362	77	43	120	26	3	3				31	42	4	6	9				61	31	3	1	35	28	2	5		35
1845	363	71	33	104	40	6	12				57	33	6	2	7	1				21	2	7	30	28				28
Tot.	5006	684	432	1116	435	55	271	3	5	39	828	398	124	45	144	9	9	27	702	159	25	35	219	312	152	114	4	602

TABLE I.—CONTINUED.

Year.	Jaundice.	Anæmia.	Strang'd Hernia.	Ovarean Disease.	Caries of Spine.	Convulsions.	Croup.	Hooping Cough.	Measles.	Small Pox	Asthma.	Apoplexy	Palsy.	Del. Tremens.	Suicide.	Cancer.	Part. and Childbed.	Epilepsy.	Rupture of Uterus.	Old age.	Diabetes.	Abscess.	Scrofula.	Erysipels	Casualties.	Still Born
1830						3	1	2	2			2		1									1	1	9	11
1831		1				2	3	1				1		2						1				1	8	7
1832		1				1	6		12			1												2	12	6
1833		1				2	5	3	2			3			3										10	12
1834		2	1	1	1	4	2	1	4		1	3		2	2	1			1	2			2	4	17	4
1835	1	2				6	5	4	3			4	1	1	1	1	1			3			1	3	9	7
1836	1		1	1		8	4	5	2			1		1				1		2			1	2	8	10
1837	2		1		1	5	4		7	7		5		1	2	1			1				1	3	7	28
1838		1				7	14	11	13	1		3		5	1	1	1	1		4		1	1	2	19	29
1839	1					10	5	3				2	1	2	4	1	1	3		2				2	27	22
1840	2	3	1			5	6	6		1	1	4		3	2					3					12	19
1841	1				1	10	4	3	4	2		2		2	1			1						1	12	22
1842	1					15	4	5	12			6		7	2	2		1	1	2		1		3	8	23
1843			1	1	1	9	3	11				3	2	4	1	2	2	1	1	4		2	5	2	14	34
1844		3				10	6	4	10			2		2	2	2	2		1	1			1	5	16	28
1845	1	1			1	11	2	13	4			8	1	2	4	1	1			2			3	3	19	31
Tot.	10	15	5	3	5	108	74	72	75	11	2	50	5	35	24	11	8	8	5	26		4	16	34	207	293

TABLE II.

This is designed to show the ages at which the Deaths in Lowell have occurred in each year of a series of sixteen years, viz.: from January 1, 1830, to January 1, 1846; commencing with the deaths which have taken place during the first year of life and ending with those between 90 and 100. The whole time is divided into thirteen periods—the mortality at each of which, in proportion to the whole amount, is as follows:

Under	1	year, as	1	in	4.9
Between	1	and 2, "	1	"	7.38
	2	" 5, "	1	"	10.01
	5	" 10, "	1	"	21.
	10	" 20, "	1	"	21.67
	20	" 30, "	1	"	9.91
	30	" 40, "	1	"	7.17
	40	" 50, "	1	"	13.3
	50	" 60, "	1	"	24.3
	60	" 70, "	1	"	45.8
	70	" 80, "	1	"	65.86
	80	" 90, "	1	"	139.1
	90	"100, "	1	"	500.

Dividing the sum of the ages at which the deaths occurred, by the whole number of the deceased, we have 20.65 years as the mean duration.

TABLE III.

Showing the proportion of deaths in Lowell, by each of the most frequent diseases, to the whole number of deaths, in a series of sixteen years, forming a scale of mortality.

Order of Mortality.	DISEASES.	Whole number of Deaths.	Being to the whole amount of deaths as one in	Whole No of deaths from diseases of a similar class.	Prop'rtion of deaths from diseases of a similar class to the whole No. of deaths as one in
1st.	Consumption,	684	7.30		
	Fevers, viz:				
	Typhoid,	435	11.4		
	Scarlet,	271	18.1		
2nd.	Puerperal,	55	90.1	828.	6.04
	Inflammatory,	5	1001.		
	Bilious,	3	1668.		
	Type not defined,	39	128.3		
	Inflammations, viz.:				
	Lungs and Chest,	398	12.5		
	Stomach and Bowels,	144	34.7		
3rd.	Brain,	124	40.5		
	Heart,	45	111.2	702.	71.1
	Liver,	9	556.2		
	Bladder and Kidneys,	9	556.2		
	Neither organ nor type named,	27	226.		
	Bowel Complaints:				
	Cholera Infantum,	312	16.0		
4th.	Dysentery,	152	32.9	602.	83.1
	Diarrhœa,	114	43.9		
	Colic,	4	1251.5		
	Dropsies:				
	Brain,	159	31.4		
5th.	Chest,	25	200.2	219.	22.8
	Organ not named,	35	143.		
6th.	Casualties,	207	24.1		
7th.	Convulsions,	108	46.3		
8th.	Measles,	75	66.7		
9th.	Croup,	74	67.6		
10th.	Hooping Cough,	72	69.5		
11th.	Apoplexy,	50	100.1		
12th.	Delirium tremens,	35	143.		
13th.	Erysipelas,	34	147.		
14th.	Old age,	26	192.5		
15th.	Suicide,	24	208.8		
16th.	Scrofula,	16	312.2		
17th.	Anæmia,	15	333.		
18th.	Small Pox,	11	455.		

TABLE III.—CONTINUED.

Order of Mortality.	DISEASES.	Whole number of Deaths.	Being to the whole amount of deaths as one in	Whole No of deaths from diseases of a similar class.	Prop'rtion of deaths from diseases of a similar class to the whole No. of deaths as one in
19th.	Cancer,	11	455.		
20th.	Jaundice,	10	500.		
21st.	Parturition and Childbed,	8	625.		
22d.	Epilepsy,	8	625.		
23d.	Palsy,	5	1001.		
24th.	Rupture of Uterus,	5	1001.		
25th.	Strangulated Hernia,	5	1001.		
26th.	Ovareain Disease,	3	1668.		
[illegible]	Abscess,	3	1668.		
28th.	Caries of Spine,	3	1668.		
29th.	Asthma,	2	2503.		

TABLE IV.

The ages at which deaths in Lowell have occurred in each year of a series of sixteen years, viz. : from the 1st of January, 1830, to the 1st of January, 1846—still born excluded.

	Und 1 yr.	1 to 2.	2 to 5.	5 to 10.	10 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 100.	Age unk.	Wh. No. of deaths.	Aver. of life for each year.
1830	29	18	9	3	10	16	13	6	2	2	1	1		6	114	18.21
1831	26	18	10	4	7	21	17	12	2	2				5	124	19.89
1832	41	28	23	27	29	17	3	4	4	2	1			5	184	13.35
1833	21	30	24	16	16	36	43	13	2	3	2				223	17.80
1834	21	31	36	11	8	26	23	23	8	5	2	2			225	20.23
1835	31	31	25	13	15	20	35	27	15	8	5	1			236	20.91
1836	72	57	32	9	12	12	50	30	10	9	3	4	1		329	16.61
1837	70	59	30	7	18	11	47	35	7	4	2	1	1		331	17.45
1838	78	77	47	33	14	32	39	33	26	16	7	3	2		436	20.31
1839	73	32	30	9	3	50	65	33	18	15	6	3			362	25.04
1840	64	37	18	14	24	59	37	19	12	12	7	1			426	17.03
1841	99	67	69	22	5	29	49	27	25	14	8	5	3		456	19.62
1842	112	73	42	23	13	41	69	39	23	14	12	7	2	1	473	23.38
1843	92	29	26	19	15	27	59	41	25	10	5	5	1		364	25.10
1844	98	49	37	18	15	55	40	16	18	8	7	1			362	19.89
1845	84	42	42	10	23	53	53	19	10	7	8	2			363	20.68
Tot.	1011	678	500	238	231	505	642	377	206	131	76	36	10	12	5006	20.65

CENSUSES IN LOWELL.

Abstract from all the Censuses which have been taken in the town and city of Lowell, Mass.

MALES.	1828.	FEMALES.
Under 7 years, . . . 196		Under 7 years, . . . 217
From 7 to 14, . . . 138		From 7 to 14, . . . 162
" 14 to 30, . . . 723		" 14 to 30, . . . 1496
" 30 to 50, . . . 258		" 30 to 50, . . . 277
Over 50, . . . 27		Over 50, . . . 38
Total, ... 1342		Total, . . . 2190

Grand total, 3532.

MALES.	1830.	FEMALES.
Under 5 years, . . 324		Under 5 years, . . 302
From 5 to 10, . . . 171		From 5 to 10, . . . 202
" 10 to 15, . . . 189		" 10 to 15, . . . 249
" 15 to 20, . . . 216		" 15 to 20, . . . 933
" 20 to 30, . . . 958		" 20 to 30, . . . 1792
" 30 to 40, . . . 358		" 30 to 40, . . . 353
" 40 to 50, . . . 111		" 40 to 50, . . . 164
" 50 to 60, . . . 37		" 50 to 60, . . . 57
" 60 to 70, . . . 14		" 60 to 70, . . . 20
" 70 to 80, . . . 6		" 70 to 80, . . . 8
" 80 to 90, . . . 1		" 80 to 90, . . . 1
Total, ... 2385		Total, ... 4081
Colored Males, . . . 7		Colored Females, . . 4
Total, . . . 2392		Total, . . . 4085

Grand total, 6477.

MALES.	1832.	FEMALES.
Under 10 years, . . . 703		Under 10 years, . . . 771
From 10 to 20, . . . 563		From 10 to 20, . . . 1464
" 20 to 30, . . . 1996		" 20 to 30, . . . 2713
" 30 to 40, . . . 720		" 30 to 40, . . . 633
" 40 to 50, . . . 208		" 40 to 50, . . . 238
" 50 to 60, . . . 62		" 50 to 60, . . . 83
Over 60, . . . 27		Over 60, . . . 52
Total, ... 4279		Total, . . . 5955
Colored Males, . . 12		Colored Females, . . 8
Total, . . . 4291		Total, . . . 5963

Grand total, 10,254.

MALES.	1833.	FEMALES.
Under 10 years, . . 905		Under 10 years, . . . 968
From 10 to 20, . . . 813		From 10 to 20, . . . 2998
" 20 to 30, . . . 1638		" 20 to 30, . . . 2914
" 30 to 40, . . . 792		" 30 to 40, . . . 675
" 40 to 50, . . . 202		" 40 to 50, . . . 132
" 50 to 60, . . . 64		" 50 to 60, . . . 159
Over 60, . . . 23		Over 60, . . . 80
Total, ... 4437		Total, ... 7926

Grand total, 12,363. Total colored population included, 33.

MALES. June, 1836.		FEMALES.	
Under 10 years,	1489	Under 10 years,	1520
From 10 to 20,	1124	From 10 to 20,	2990
" 20 to 30,	2200	" 20 to 30,	4689
" 30 to 40,	966	" 30 to 40,	1296
" 40 to 50,	372	" 40 to 50,	475
" 50 to 60,	144	" 50 to 60,	122
Over 60,	60	Over 60,	96
Total,	6345	Total,	11,288
Colored, 44.		Grand total, 17,633.	

MALES. May, 1840.		FEMALES.	
Under 10 years,	1865	Under 10 years,	1865
From 10 to 20,	1369	From 10 to 20,	3464
" 20 to 30,	2143	" 20 to 30.	5568
" 30 to 40,	1128	" 30 to 40,	1605
" 40 to 50,	520	" 40 to 50,	650
" 50 to 60,	224	" 50 to 60,	318
Over 60,	92	Over 60,	170
Total,	7341	Total,	13,640
Colored, 58.		Grand total, 20,981.	

MALES. May, 1844.		FEMALES.	
Under 10 years,	2441	Under 10 years,	2391
From 10 to 20,	1621	From 10 to 20,	3642
" 20 to 30,	2565	" 20 to 30,	5945
" 30 to 40,	1559	" 30 to 40,	2098
" 40 to 50,	773	" 40 to 50,	946
" 50 to 60,	320	" 50 to 60,	431
Over 60,	153	Over 60,	244
Total,	9432	Total,	15,697
Colored, 44.		Grand total, 25,163.	

The total population in May, 1846, is 28,841. The number between four and sixteen years, 5,280.

ARTICLE VI.

CONDITION AND PROSPECTS OF THE MEDICAL PROFESSION.

BY JOHN WARE, M. D.

Read at the Annual Meeting, May 26, 1847.*

Mr. President and Gentlemen,

It was my original purpose, in addressing this Society to-day, to have fallen in with the general custom, and selected a subject exclusively of practical interest. But the circumstances of the times having turned the thoughts of many among us to the present position, relations, and prospects of our profession, it seemed not improbable that our attention might be profitably directed to the consideration of some topics closely connected with them. In the discussion of these topics I hope not to depart from the true purposes of our meeting, or to mistake the true objects for which we

* Considerable portions of this discourse, which, in consequence of the indisposition of the writer, were omitted in its delivery, are here inserted.

are associated. This Society was established in order that it might promote the well-being of the medical profession in the Commonwealth. But by this is to be understood not merely the well-being of physicians individually and as a body. In its original constitution, there is implied, if not directly enforced, a still higher function. It is in all respects the responsible guardian of the medical profession. It is intended to gather together and to keep together all practitioners in one uniform body; to take means to give them the highest possible medical education, and ensure them the highest possible personal character; to do it equally with regard to all, in all parts; and to do it in such manner, that the community shall have cause to repose confidence in the spirit in which it is done, and in the results which are brought about.

For it is to be recollected, that we are not constituted by our own act, or mainly for our own interests. Physicians do not exist of themselves or for themselves. Their existence is not in itself a benefit. It grows out of a certain necessity in the community, which renders them only indirectly useful, inasmuch as they furnish the remedy of an evil. And so of our Society. It was not formed chiefly for our sakes. Privileges were not conferred upon us chiefly for our advantage. The ultimate object was the benefit of the community. Mankind require, for their comfort and safety, a body of well-educated and conscientious physicians. As the surest means of accomplishing this purpose, they have commanded us to associate together; and, giving us certain duties to perform, have

also endowed us with certain privileges to induce us to their performance.

We should take, therefore, a very insufficient view of the objects of our organization, if we regarded it as existing merely that we may come together, once a year, to take each other by the hand, to consult concerning our common interests, to establish regulations for our intercourse with one another and with our patients, to administer discipline if it should be necessary, to hear an annual discourse, and to assemble in a kindly and fraternal spirit around the social board. These, it is true, are worthy purposes, and they alone would have been enough to justify the existence of our association. But we still have another object, because we have another relation than that which we bear to each other—namely, that which we bear to the community that has called not only our Society, but our profession into existence, and for which we may be said to live and move and have our being. Our first and highest responsibility is to this community. Our great duty is to see that its interests are attended to. The mode and character of our organization, our policy, and our attention to our personal interests, are only so far commendable, as they do not interfere with, but rather tend to promote, this great ultimate purpose.

And fortunately, as it happens, not only are these two things not inconsistent, but the means promoting the one are those also which will tend most certainly to the promotion of the other. There are abundant evidences in the proceedings of this Society, that the

principle I have stated has neither been forgotten nor neglected. But it is a weakness from which none are free, that, when zealously engaged in the attainment of any end which requires a complicated and extensive organization of means to bring it about, we are apt to overlook the paramount importance of the end, in the interest which becomes attached to the means. This weakness displays itself both in small things and in great. We see it in little societies established for the most trivial of purposes. We see it in those organizations which decide the policy of nations. Thus the profession of arms comes to be considered as a pursuit worthy of existence for itself. Thus governments, in all ages and of all kinds,—Monarchical, Ecclesiastical, and Republican,—after a while come to believe that the people are for them, and not they for the people,—that they have an existence independently of those who really created them,—that this existence is in itself a good,—and that they thus have inherent rights of their own.

We can scarcely hope to have kept ourselves entirely free from so universal a tendency, however insensible we may have been to it, and however we might shrink from its intentional indulgence. It can hardly have happened, in our earnest and proper cultivation of an *esprit du corps*,—in taking measures to ensure regularity and discipline within, and to prevent encroachments from without, our ranks,—that we have not sometimes erred in confining our regards too much to our own organization,—our own independent exist-

ence,—our own interests. Whether this have been so or not, if merely the danger of it exists, it cannot be without its use from time to time to review our position and our relations,—to go back to the first purposes of our existence,—and thus to refresh in our minds the knowledge of the principles which should guide us, and the duties which devolve upon us. We are the guardians, as I have said, of the medical character; we are appointed to watch over the interests of society in this particular; to us the public look for assurance that they will be faithfully served, in some of the most important and interesting relations of life. Our great and ultimate purpose should then be to perform this duty well; to adopt such a policy, and take such measures, as will secure to the community an improved and improving medical profession,—as will give to its physicians, now and in future, the highest possible social, intellectual, professional, and moral character. It is thus, indeed, that we shall in the end best promote our own interests. It is thus, that we shall at once show our sense of the true excellence of our calling, and manifest to the world that in which its true worth and dignity consist.

It will not be amiss to suggest here certain circumstances, in the condition and prospects of the medical profession in such a community as ours, which should operate as strong motives to give the subject, in this point of view, our earnest attention. Our profession holds, in a country with such institutions as ours, a far other and more important relation than elsewhere. Where there is hereditary rank, or where

there are certain classes of men with a defined position in society, transmitted from generation to generation, either as the inheritance of blood or of fortune, the mass of mankind look up to such classes as their leaders, as their models;—always, certainly, in customs, manners, and all those lighter arrangements which give a charm and elegance to human intercourse; and too often, also, in morals and religion. Now, among ourselves, we may scorn as we please the imputation of social inequality, and assert that, as no class has the right, so none has the power, to exercise among us this sort of social influence. But it is not so, and, constituted as mankind are, it cannot be so. The bulk of men do, and must, think and live on authority and by imitation. They look upward, somewhere, for models in opinions, in manners, in morals. We have pulled down the idols of silver and gold which are worshipped in the old world, and are proud of our own purer political devotion. Let us be sure that we do not put up in their stead idols of iron and clay.

Now, our profession is, and, in this country, always must be, one of those permanent classes which exercise a wide social influence. We are not, as in some other countries, a class, honored indeed to a certain extent, but still subordinate to the aristocracy, to the landholders, even to the gentlemen of the land. We are here of the aristocracy,—I use theterm in no offensive sense,—we are, or ought to be, among the gentlemen of the land. There is an influence in this relation, which we must exert, whether we will or not. Surely this is

one of the responsibilities that should excite us to establish such a standard of education, manners, and character, as will make that influence a salutary one.

The condition and character of the community to which we belong, not only presents us with a powerful motive, but at the same time offers us the best opportunity and the highest rewards, for aiming to establish a high standard in our profession. On the whole face of the earth, you can hardly find a spot which contains within itself the elements of so favored a lot. Our Commonwealth, though small in extent, has a population large enough for energetic undertakings, and yet not too large for the maintenance of a steady and uniform social character. Though our soil is barren, and our climate harsh, they still do not refuse a sufficient return to that industry which is stimulated by the very obstacles they present. These obstacles, indeed, excite a spirit of intelligence and enterprise which exhibits itself in the developement of countless sources of wealth and comfort, that do not depend upon soil or climate, but on a persevering will, for their existence, and ensure to us an increasing prosperity with an increasing population. Then, by means of a system of intercommunication, gradually penetrating to every corner of our territory, we are practically compressed into a space so small, that each man may almost call every other man his neighbor, and feel his influence either for good or for evil. Beside all this, there were early implanted here, by those who founded our community, high political, moral, and religious principles, without which the best advantages of soil and climate and situation are worthless.

In its progress and present position we witness results which are the legitimate effects of the circumstances that have been enumerated. I do not refer merely to a worldly prosperity almost unexampled, when compared with our original physical advantages, but to results of a more important kind. Where have the principles of constitutional liberty been better understood, or more ably defended, or received a stronger forward impulse, than among the people of Massachusetts? What community first set the example of the abolition of African slavery? Where originated the modern movement against the barbarous custom of war? Where the temperance reformation? Where are the interests of general education more sacredly guarded, and its principles investigated and illustrated with more earnestness and perseverance? Where has there been any earlier, or at least more zealous exhibition of that improved humanity, which has mitigated the punishment of crime,—has aimed to make the law a reformer instead of an avenger,—devised improved systems of prison discipline, and soothed instead of exasperating the fury of the maniac? Where is there any community which can show so many devoted spirits striving to elevate the intellectual, social, moral, and religious condition of mankind,—many of them no doubt with an intemperate and uncharitable zeal, but still always with the essential purpose, at the bottom, of doing good?

Who can doubt of the onward progress of such a community as this?—and is it not our part to do something in this great work, and to keep the standard of

our profession up to that of every thing about us? Shall we fall behind others in this enterprize? Shall we not partake in that spirit of the age, whose watchwords are Improvement, Progress, and Reform?

There is yet a further reason, and one more peculiar to ourselves, why we should at this time pause to look out our position, with the purpose of defining to ourselves the design and spirit which are to guide us in our course. We are not to conceal from ourselves the fact that this position is different from that which we once held. Formerly, though often the subject of ridicule and satire, medicine was looked upon by the mass of mankind with a veneration almost superstitious, as it still is among savage nations. In times long since past, there was supposed to be something recondite, mysterious, far above the apprehension of the vulgar, in the knowledge of physicians. The oracular air and the dictatorial authority which they assumed, were submitted to as rightfully belonging to those who possessed secrets of nature and art of an almost supernatural character. And, more recently, although the excess of this feeling had passed away, there still remained a *prestige* around the profession, which gave its members a sort of authority over the minds of men in their peculiar vocation, resembling that possessed by ecclesiastics at the confessional. But this has nearly ceased. Indiscriminate reliance on authority no longer exists. To assume it, would expose us to derision. The confidence of mankind, as a mass, in the regular profession, has changed its character, and has probably much diminished.

So far as it remains, it depends more on personal regard, and reliance on the individual, than upon any general high appreciation of medical knowledge. How ready are people of all classes to trust themselves to men of imperfect education, if not of equivocal character! How ready are those of even good education and intelligence to set themselves up as final judges upon questions with respect to which men of the largest capacities, trained from youth to the study of such subjects, and grown gray in watching disease, find it very difficult to get at the truth!

So much is this the case, that some among us have at times entertained fears with regard to the stability and permanence of our profession, as at present constituted; and, rendered timid by the signs of the times, have seriously apprehended that we are to be sooner or later supplanted by some new medical dynasty, if I may so call it. At the same time many, out of the profession, the proselytes of some recent sect, have, almost exultingly, prophesied, that at no very distant period the new system, to which they have given their adhesion, will establish itself upon the ruins of the old.

But, while I have not the slightest apprehension of this result, and, on the contrary, the most unlimited confidence in our stability and permanence, yet, since it is impossible not to admit the reality of the change to which I have adverted, we are, I think, imperatively called upon to consider seriously our present condition, and to call up for reflection the principles of conduct which will contribute most certainly to establish the

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profession in future upon an honorable and enduring foundation. And we may remark, in the first place, that, whatever may have been the merits or demerits of the members of our calling, it has not, in point of fact, been from a knowledge of the former, that the confidence of mankind has been given them,—nor from a discovery of the latter, that it has been taken away. Those who once bestowed their confidence were no competent judges whether it were deserved; those who have now withdrawn it or diminished it, are as little capable of appreciating the qualifications of those upon whom they sit in judgment. It proceeded from that blind reliance upon prescription and authority, which led men to accept upon trust many opinions, and suffer the existence of many institutions, which had no other foundation. This is a species of confidence, which, among the progressive portion of mankind, is not now reposed in any thing. Neither in law, in government, in morals, nor in religion, is such authority recognized. Every thing is made subject to careful scrutiny,—its foundations are examined,—its truth is tested. Every thing is presumed to be capable of improvement. And if on any subject there exists, or is fancied to exist, in those connected with it, a disposition to oppose the operation of the principle of progress,—a disposition to cling too closely to the past,—there will result, as a natural consequence, distrust and want of confidence. Such a disposition does exist, with regard to all subjects; and, although in many persons, on the one hand, the spirit of improvement degenerates into an indiscriminate zeal for novelty and change,—

a desire to destroy one thing merely because it is old, and to substitute another merely because it is new,—yet it is equally true, on the other hand, that there is a class, in whom the opposite tendency predominates; who resist all proposed improvement merely because it is new, and cling pertinaciously to the shadows of the past merely because they are old.

In all professions and occupations, such a class exists, and it is not strange that they should be the occasion of distrust, especially when, as in our pursuits, so many things present themselves, which are at first calculated to startle the inquirer, and lead him to believe, on a superficial examination, that there can be no truth and no certain knowledge, where there is so much disagreement, and so much doubt, upon what seem to be essentials. He sees, that, from time to time, the most opposite theories have held sway over medical opinions and practice. He hears those of one school, or of one age, denouncing as absurd and hurtful, doctrines, which those of another regard as sacred for their truth, and inestimable for their practical benefits. He hears one man, or one set of men, proclaiming, as destructive to health and life, modes of practice which others regard as indispensable for their preservation. He perceives how much of our knowledge, as to the nature, causes, and treatment of disease, is admitted, by the best informed, to be uncertain,—what differences of opinion consequently exist among the wisest: this uncertainty and these differences seeming to increase as our knowledge really increases. It is not strange, while this is found to be the case among

those who were once looked up to as oracular and infallible, that distrust should creep in, and the actual amount of certain knowledge come to be undervalued.

We have been often reproved for our errors, our mistakes, our disagreements, our uncertainties; but I still think medicine will bear a comparison in its history, and in its present condition, not only as to the spirit of truth and humanity with which it has been pursued, but also as to the results which have been attained, with any branch of human inquiry, when the difficulties which surround its investigations, and the circumstances under which the comparison is made, are taken into consideration. It stands, in relation to its studies, on an entirely different ground from any other science. In its practical departments especially, the investigation of disease and the application of remedies, we are interfered with by the influence of circumstances, which have no place in other scientific inquiries, and which confuse and embarrass the judgment. Moral elements constantly mingle in; and, whilst they change the conditions under which the inquiry is to be prosecuted, they at the same time prevent that cool and dispassionate state of mind which is so necessary to a fair result. Hope, fear, impatience, anxiety, imagination, pride, and even superstition are constantly combined with the pure physiological materials, incapable of being appreciated if perceived, and often unperceived by the observer, when they are producing their full influence upon the patient. These circumstances in practical medicine combine to render it a more difficult subject for judg-

ment, than any other which comes before the human mind.

But, even in those departments of our science which are free from these impediments, I cannot but think that the uncertainty and imperfection of our knowledge have been much over-stated, when the nature and extent of the subject to which it relates are considered, and the intrinsic difficulty of the study. In comparing medicine with other sciences, it seems always taken for granted that it presents a field about as extensive as each of the others with which it is compared. But this is a most erroneous view. Medicine embraces the whole science of living bodies. The phenomena of living bodies are much more various than those of inorganic bodies,—and so are the laws according to which they take place. The collection of physical sciences, then, which concern inorganic matter, are *all together* to be placed in comparison with the science which relates to the laws of living matter. The chemistry of life, for example, is as extensive and complicated a subject as the chemistry of the inorganic world; and so of the infinite motions which take place in a living body, and of the infinite relations which are maintained by means of the nervous system,—they are more numerous, more obscure, more complicated, than those existing among the inorganic bodies, which are the subjects of natural philosophy and astronomy. Now, when we comepar the amount of labor which has been bestowed on mechanics, or astronomy, or chemistry, individually, with that which has been bestowed on med-

icine individually, these sciences are found in advance. But compare the *whole* of the labor which has fallen to the lot of Astronomy, Mathematics, Chemistry, Natural Philosophy, Geography, and Geology, on the one hand, with that which has been bestowed on Medicine as a science, on the other, and the progress it has made is rather a subject for pride than for humiliation.

There are still other points in this comparison which should be stated, in justice to the condition of our science. The properties forming the object of investigation in other sciences permanently appertain to the bodies which are their subjects. The affinities of these bodies, their chemical relations, their mechanical relations, their weight, their measure, their action on one another, are known and permanent. But you cannot examine life till you have destroyed it. The very object of your investigation escapes as the consequence of the first step of your experiment; the sacred fire goes out, as soon as you lay your hand on the materials by which it is supported. Suppose that the astronomer had been obliged always to examine a universe at rest; that the mechanical laws of the heavenly bodies must be suspended, and the sun, moon, and stars must stand still in their orbits, as a necessary preliminary in his investigation; the science of astronomy would then have been as difficult as the science of life.

In contrasting this, commonly regarded as the most perfect, with our own, which many are pleased to consider as the most imperfect of sciences, there is

still another circumstance which contributes not a little to give to the former some of the comparative lustre which encircles it, namely, the immense distance of the bodies to which it relates, and the impediment which this is supposed to present to their examination. But is not this a fallacious view of the matter? The very fact of distance, instead of adding to the difficulty, diminishes it. It insulates them; it renders them more susceptible of exhibiting the amount and the laws of their mutual dependence. Astronomy relates to a few simple laws of matter governing the motions of bodies at a great distance, but still perfectly separated, and capable of a separate examination; their motions may be distinctly perceived and followed and measured,—all, in fact, are insulated, and free from extraneous and conflicting influence in consequence of their very distance from us and from one another. *Distance* among bodies thus uncomplicated is far less of an impediment, than are *minuteness* and *indistinctness* among bodies which are complicated. In this point of view, the investigations of the physiologist are encompassed by a thousand difficulties which do not embarrass the astronomer. The telescope is much easier of management than the microscope. It is easy to follow the stately course of a planet through the heavens with the former, to measure its motions, its rapidity, its deviations; but how hard to keep close on the tortuous track of a particle of blood by means of the latter. Many may smile at the assertion, perhaps some who hear me may be of the number; but, taking circumstances like these into view, I account the

discovery of the circulation of the blood by Harvey, to have been hardly a less difficult and honorable achievement, than the true explanation of the motions of the heavenly bodies by Copernicus.

But, to return to the point from which we have thus digressed, while we admit that the confidence reposed in medicine is not what it was, is it certain that this is to be lamented? Should we desire to be regarded in the same light as formerly? to be held in the same kind of regard as in a less enlightened age? It would be a confidence unworthy of the age, unworthy of the present advanced state of the profession. It is true, that we need the confidence of mankind in order to our usefulness; but I am sure, that, when the history and character of the profession, and its present improving condition, are thoroughly understood, we shall receive, as I believe we deserve, a place in the estimation of the world more honorable and substantial, than ever before. It is only for the present, during a sort of transition period, when old relations have been broken up, and before there has been time for new ones to become established, that our position can be at all uncertain or equivocal. The following consideration, I cannot but think, has much weight, in enabling us to judge of the probable future destiny of our profession; namely, that whatever may be the currency of particular opinions, or the reputation of particular bodies of practitioners, the public will confide, mainly and habitually, in that body, or that succession, of men, who show themselves to be devoted to medicine, not merely as a means of getting a live-

lihood, or even as a means of treating disease and relieving suffering by the common routine of practice, but who pursue it as a great subject, all the relations and bearings of which it is their duty to investigate; who regard it as a science which they are deputed to build up and perfect; and who do all this, as diligent, earnest, and disinterested inquirers after truth.

It is this class of men, who, when they are fully understood, will receive the permanent confidence of mankind; and such, I undertake to assert, has been, and is, the essential character of our profession. Individual cases, it is unhappily too true, of selfishness, bigotry, narrow-mindedness, and prejudice, have so often occurred among prominent men, that the public have been sometimes almost ready to look upon these qualities as characteristics of the profession. But a glance at our history is sufficient to show how false is this estimate, and how different has been the character of those who have really been its lights and guides. Mankind are often disposed to reproach us, and we are sufficiently ready to reproach ourselves, with what we have failed to learn; but, if we examine into the amount of knowledge in medicine and its subsidiary branches which its votaries have accumulated, and at the process by which it has been accumulated, we have no reason to shrink from a comparison with any other company of philosophical observers.

Look at Anatomy and Physiology; the former, the most perfect of the descriptive sciences, the latter, though the most difficult of subjects, bearing a fair

comparison in its condition with any other. We cannot fully appreciate,—we can hardly imagine,—the difficulties with which they had to contend, who first investigated them, and have done the most, by laying a good foundation, to bring them to their present state of improvement. They persevered, century after century, not merely contending with the impediments growing out of the circumstances of the times and the imperfect modes of investigation then prevailing, but against prejudice and superstition and persecution. The state of human progress was against them.

Look next at the collateral branches. I do not claim for physicians the honor of having established the science of Chemistry, though I am not sure that we might not make out a strong case; but, during the greater part of its history, it has been much in their hands, and has derived its chief impulse and support from its connexion with them. They at least cherished the feeble steps of its infancy, though it has now the strength and courage to stand by itself. We may say nearly as much of Botany, of Zoology, of Comparative Anatomy, of Mineralogy, and of Geology. Strip these sciences of what has been contributed to them by physicians, or by those who have had the discipline of a medical education, and a chasm is left which it would be difficult to fill.

But, coming to labors more directly practical, to say nothing of the accumulated experience of those who have devoted themselves to the care of the sick in private life, follow those who have exposed themselves

to privation and danger in a thousand forms, in the cause at once of humanity and of science. On the field of battle and in the camp; in hospitals and lazarettos and jails; in the midst of miasmata and contagion, of pestilence and death; whether in the torrid zone or in the frigid, on the land or on the water; wherever men have been carried by the love of wealth, of enterprize, of fame, of knowledge, or as ministers of religion, there have their steps been waited on by the members of our profession, ready at once to perform the offices of humanity, or subserve the cause of science; and, among the earnest and the faithful, who more earnest and more faithful? As the fruit of their various exertions, to say nothing of contributions to collateral branches of science, and of the relief of human suffering, and the saving of life, there has been accumulated an immense amount of knowledge upon subjects the most important to humanity; as, for instance, the causes and the laws of disease, the circumstances which promote or prevent its propagation, the laws of individual health and of public health, and the principles according to which the physical condition of man at all ages, and of communities of men under all circumstances, may be made to maintain the highest possible standard.

But we have a claim on the confidence of our fellow-men, not only for what has been done, but for the spirit in which it has been done. These services of the medical profession, upon the whole, have been among the most disinterested ever rendered to mankind. They have been distinctly governed by

the desire of acquiring that knowledge which will confer practical benefits on society, without reference to the amount of reward, or to any fame except that of doing good. There is no better proof of this than the fact, already implied, that the aim of those who are most prominent in medical history, has been more to investigate the laws of disease, and thus to prevent it, and raise the standard of health, than to acquire reputation or wealth by what is far easier and more lucrative,—attention to the ordinary details of a medical practice. And, if it were necessary to introduce a more striking example of what is to be regarded as the governing spirit of those who are the true index of professional character, we have but to name the discovery and gift of vaccination to mankind by the illustrious Jenner.

In spite of all this, as I have already admitted, ours being a practical art which is necessarily connected with every rank and condition in society, it has of course happened, that, among that class of the profession who are engaged in its common details, a large proportion merely regard it as a means of earning their daily bread, or of acquiring property and consideration. To them, the practice of medicine is like the practice of any other occupation, selected and followed almost mechanically. Hence there are always to be found physicians of sordid minds and purely selfish views, who are yet high in professional rank and emolument. Such men, naturally enough, but unhappily for our good name, have often been the most prominent to the public eye, and have been the chief

recipients of favor and patronage, just as it has happened in all other departments; and they have been thus sometimes taken as exponents of the character of the whole profession. But its true representatives are they to whose lives and labors I have just referred; and from these men the treasures of knowledge, which they accumulated in years of faithful and unceasing labor, have descended to us as our rich inheritance; possessed of which we should feel safe as to our future destiny, whatever may be the accidental and temporary alienation of portions of that public whom we serve, and whose confidence is so necessary to our usefulness. If we are faithful to the true character of our profession; if we go forward with honesty and fidelity in the path of our predecessors, governed by the same desire of knowledge and of usefulness, we need not fear but that the present movement of opinion will be transient, and that our position will become more firm and durable than before.

But, however confidently we may cherish this expectation, it is not the less our duty to look into our condition, and see if there be nothing in our institutions, our principles of action, our systems of education, which is either capable of improvement, or which requires more zeal, more earnestness, more perseverance, and more concert of action; and I propose, in the remainder of this discourse, to suggest briefly some of those considerations relating to the subject, a regard to which will have the effect, not only of elevating progressively the standard of medical education and character, but of bringing about in the com-

munity a better understanding of these, and a more just appreciation of the claims of the regular profession upon its confidence and respect.

One very important means toward this end is, to adopt an improved and improving standard of attainments for those who enter the profession; *improved*, because, although there have been vast accessions to medical knowledge in our day, the standard of education remains nearly where it was; *improving*, because, great as these accessions have been, the increase of knowledge, of valuable practical knowledge, is destined to be much greater in the next generation than it has been in the past. He, therefore, who now enters the profession, should not only be possessed of a greater amount of knowledge than his predecessors, but of a more cultivated capacity for the acquisition of knowledge.

It is worthy of consideration, then, whether there should not be required of those who enter upon the study of medicine a more thorough education in those elementary branches, which are preliminary to the right understanding of any scientific inquiry, even of the simplest kind. Is nothing more necessary, before entering upon some of the most difficult subjects, than a common English education? Is it merely necessary to be able to read and write our mother tongue, and that perhaps in a very imperfect manner? Are no habits of mental discipline, is no intellectual training, of advantage, before attempting to master subjects like those which engage the attention of the medical student?

But, further than this, is it not true that even the

preliminary branches of medical study themselves are passed too slightly over,—Anatomy, Physiology, Chemistry, and especially Animal Chemistry? Are we not apt, in our haste to plunge into the practical branches, which are to be the business of our lives, to hurry over these elementary studies, without which there can be no proper comprehension of the more advanced ones? I can truly say, that, through the whole of my medical life, and under circumstances which have generally presented the strongest inducements to the acquisition of knowledge, I have felt constantly impeded and embarrassed by the want of thorough preliminary study; a want, which it is almost in vain to attempt to make up, amidst the labor and responsibility of our daily duties.

There is another deficiency which should be noticed, growing partly out of these original defects of education, partly out of the want of early habits of study, and of the consequent love of, and facility in, acquiring knowledge, and partly out of the mode of life which necessarily attends upon our occupation. We do not always, even so far as we might, keep up with the medical improvement of our age. How many of us continue to be faithful students and thinkers, after we have attended our last course of lectures, and obtained our credentials for practice? How many of us keep watch on the labors of those who are spending their lives in searching out new knowledge in medicine? With how many of us does our reading go much beyond that of a few elementary books, and of a few medical journals, and those not always of the highest and most instructive character?

I appeal to all those who have been in any way conversant in medical education, to those who have acted as the examining officers of this Society, to every individual in his own case, and in that of his neighbors, whether I have intimated more than their experience confirms. And if I have not, does it not become our duty gradually to remedy these deficiencies, to raise, and to keep up, the standard of medical education; to put ourselves on a level in this respect with the rest of the community in which we live, and to show them that it shall be no fault of ours, if we do not merit and receive their confidence?

I know there are many who are disposed to question the utility of some of the preliminary training to which I refer, and especially consider as useless those classical acquirements which form so large a part of a liberal education. But, for my own part, such is my estimation of the happy effects of such studies in general upon the minds of the young, in opening and cultivating their faculties, rendering them more susceptible of higher knowledge, giving them habits of acquisition, turning up the virgin soil thoroughly, as it were, before the seeds of life are sown, that I could wish every man who enters our profession had the advantage of a liberal education. This, in our community, is, to be sure, impossible; but still we ought to make as near an approach to it as is practicable. We should perceive its effects, not merely in the softening and ameliorating influence which it has upon the general character and manners, but in augmenting the capacity even for purely professional acquire-

ments, and in communicating a love of mental occupation, which will follow the physician, and never suffer him to be contented with the mere routine of his daily life.

There is no greater relief to the anxieties, or support under the responsibility, or refreshment after the toils of a medical life, than is to be found in a taste and capacity for some kind of reading and study. It may be the study of professional works only, though I cannot think a man is wise, or does justice to his own mind, who confines himself to these,—or the pursuit of some kindred branch of science, as Chemistry, Natural History, or Natural Philosophy ;—or, instead of these, or, what is still better, mingled with these, an indulgence in that lighter taste which leads one to works of general literature, criticism, poetry, fiction; any of them is better than none, and all together better than any one alone. But unhappily there is apt to be too little disposition for any of them in him, whose love of mental occupation was not formed and cherished before he entered upon the engrossing task of preparing for his profession, or, especially, before he became involved in its practical duties.

It will occur, perhaps, to some, that, by requiring a higher education, we are rendering entrance to medical life more difficult, and putting it out of the power of many persons of limited acquirements and narrow means, to gratify the ambition, so common among us, of enrolling themselves in the ranks of a profession. This is true. It *will* be made more difficult to become a physician. But is it not now too easy? It

will diminish the number of those who become physicians. But is not the number now too great? I put it to the good sense of this audience, whether this objection has any weight. Is it any advantage to the profession, or to the community, that entrance into it should be very easy? Should the prizes of life be made so cheap? Do we not thus undervalue our calling? Is not the standard of professional character, as well as of acquirement, lowered by this facility of attaining its honors? Is not our profession injured, not merely as it regards the honest worldly reward of its laborers, which no man ought to pretend to despise, but is not its duty to the community imperfectly performed as a consequence?

It is, to be sure, popular to talk of making education cheap, and of making the avenues to honor and profit open freely to all. But this is said in a very loose way. It is said for effect, by those who have no definite idea of what they really mean. That education which is equally necessary to all,—to every occupation, the humblest as well as the highest,—should be made free to all. This the very safety of society requires. But, when we come to the education of men for particular stations in society, the case is very different. Even then, let the education be made as cheap and easy as it can be; but not cheap and easy by making it poor. Do not let us deluge the community with a flood of half-learned professional men, who drudge heavily through life, half employed, half paid, half starved, far less respectable in their vocation than a substantial farmer, an honest trader, or a skilful

mechanic, because we choose to be blinded by a falsely so called republican maxim, which it may answer very well to bandy about at a political caucus, but which should never pass current with those, whose aim is the true respectability of their profession, and the real good of the community.

But, in order that we should deserve and perpetuate the confidence of mankind, not only is it necessary, that those who are to enter the profession should be highly educated; it is also necessary, that we, who compose it, should exhibit to the world a spirit of improvement and progress,—a disposition to employ faithfully all the means we now possess in the practice of our art,—and that, free from a primary regard to personal emolument and reputation, we should be ready to examine with a fair and candid spirit all and any suggestions, however they may arise, and from whatsoever quarter they may come, which hold out a fair promise of increasing those means.

And I must be permitted to say, that the character of our profession has often suffered in the opinion of mankind, and confidence in the real value of our knowledge has been lessened, by the spirit which has been frequently exhibited on this subject. There has sometimes been a want of liberality, a reluctance which must be called narrow-minded, not merely to admit, but even to look at the evidence of any new truths, and especially new modes of treatment, which present themselves out of the beaten track of medical observation. It has even gone farther than this, and the same disposition has shown itself, with regard to new things which have

come up in the profession itself, especially if there happened to exist any of those petty jealousies, growing out of individual or local rivalry, which we so often suffer to blind and mislead us.

Now this disposition arises from a species of caution, good in itself and useful, growing out of a large experience of the fact, that, of new things, a great proportion are false, and that the evidence upon which most men rely as sufficient for proof, especially on medical subjects, is totally inadequate. But, still, new things are sometimes true, and we can only select these by an examination of all. And, even were we capable of determining, as we sometimes are, *a priori*, without examination, that certain things are false, we cannot place mankind in that position for observation which we occupy, we cannot impart to them those elements for judgment which we possess. We expect them to take our opinions on authority; but, in order to secure submission to authority, we must satisfy them that we are candid inquirers and impartial judges; we must be free from the suspicion of professional prejudice or jealousy. In order, then, to lead the opinion of the public in the matters which concern our occupation, we must be content, not merely to examine the evidence for the things which *we* think offer a fair show of probability, but for those which *they* think offer such a show. What may seem very unlikely to us, may seem very likely to them. What we even *know* to be impossible, they may be very ready to believe; and this, even among those who in their own pursuits are intelligent and well-informed. To se-

cure their reliance on our opinions, we must, in making up a decision, put ourselves in their place, instead of expecting them to put themselves in ours. We must allow much for the circumstances under which they judge; much for their prejudices. Let us be sure that we do not yield to our own. We must be content to sift the chaff for their satisfaction, even when we feel confident there is not amongst it even a single grain of wheat to reward our search.

The disposition to which I have referred has often exhibited itself in the past history of medicine, and still continues to manifest itself in different ways, and in an irregular and unequal manner. We know how slowly and reluctantly assent was yielded to the discovery of the circulation of the blood, and how its author was subjected to obloquy, persecution, and even the charge of impiety. It was somewhat so with the great discovery of Laennec. How slow were many, especially the older members of the profession, to admit its value. By some it was received with doubt, by some with ridicule, and by some it was even declared to be impossible. But one of the most remarkable examples on record of this sort, is that which relates to the introduction of inoculation for small pox; and it is at once so curious and so instructive, that I cannot forbear recalling it to your attention. We, who have always lived in a community secured by the mild efficacy of vaccination from this loathsome pestilence, can know but little of its real horrors, when it prevailed unmitigated and unchecked. But we know enough to have taken it for granted that even

such an alleviation of them as was promised by inoculation would be hailed as a gift from Heaven. But it was not so; inoculation met with the most strenuous opposition, not only from the vulgar and the prejudiced, but from the faculty themselves. 'Nay all,' says a biographer of Lady Mary Wortley Montague, 'rose in arms to a man, foretelling failure and the most disastrous consequences.' 'We now,' he continues, 'read in grave medical biography, that the discovery was instantly hailed, and the method adopted, by the principal members of that profession. Very likely they left this recorded; for, whenever an invention or project, and the same may be said of persons, has made its way so well by itself as to establish a certain reputation, most people are sure to find out that they always patronized it from the beginning; and a happy gift of forgetfulness enables many to believe their own assertion. But what said Lady Mary of the actual fact at the actual time? Why, that the four great physicians, deputed by government to watch the progress of her daughter's inoculation, betrayed, not only such an incredulity as to its success, but such an unwillingness to have it succeed, such an evident spirit of rancor and malignity, that she never cared to leave the child alone with them one second, lest it should, in some secret way, suffer from their influence.'

This picture is perhaps somewhat colored by the lively imagination of this celebrated woman, yet we have no reason to doubt, that it is essentially true. It may teach us a useful, though a humiliating lesson; and, though I trust there is less of such a spirit in an

age so enlightened as ours, yet we see some exhibitions of the same sort in our own times; and there is scarcely any thing, which, as it appears to me, does more to lower the tone of public confidence in the profession, and excite distrust of its spirit and tendencies. It should be said, however, in justice to ourselves, on the other hand, that, although this illiberal reception has been given to new discoveries by certain individuals, at particular times, yet, with regard to things really valuable, such has not been the final judgment. Essentially, fairness, honesty, love of truth and of usefulness have prevailed; and justice, too tardy sometimes, it is true, has been rendered to them. The very fault to which I have referred, does in part arise from the very excess of these qualities; the fear of admitting that which is not true; an excess of that caution which is in itself right. It would not be easy to say which would be in the end most injurious to medicine, the credulity which eagerly seizes upon and appropriates every novelty that is suggested, or the incredulity which as decidedly rejects it at once, equally without any examination or inquiry.

You will readily perceive, and I am far from being desirous to conceal it, that these remarks have been suggested by the attitude the profession has assumed toward several systems, the current novelties of the day; which attitude has, I fear, had something of that influence on public opinion, to which I have referred. It is not necessary to state particularly what this attitude has been. It is sufficient to say that the systems to which I refer, that have been branded as the

offspring either of folly or of imposture. This I regard as impolitic, for the reasons before mentioned; we cannot place the public in our position, or give them our materials for judgment;—and, as wrong, because, admitting these systems to be ever so wanting in truth, the history of human opinions shows us that there is nothing so absurd in doctrine or in practice, which has not been honestly believed by persons of intelligence and education. It is no doubt the case, that there will always be, among the adherents of a new system, many persons of quite an equivocal character. Some adopt it from a love of novelty or of notoriety, or from the desire of gain, or on account of the ease with which distinction is obtained among the proselytes of a new sect. But this would be the case with a system founded in truth, as well as with one founded in falsehood. Hence, although there are probably many unprincipled adventurers among the disciples of these new systems, I see no reason to doubt, that, as a body, they are governed by the same principles of action as the average of mankind.

The relation which we maintain towards systems we believe to be false should be determined by a principle which is most important in its bearing; namely, that there is no form of error, from the careful observation of whose origin and progress important inferences may not be drawn for the establishment of truth. Every kind of error has of course some truth, to which it is, as it were, the negative pole; the knowledge of one is necessary to the knowledge of the other. This is as applicable to

medicine as to any other subject, perhaps more so. I will make its application to but a single one of the systems to which I have alluded, Homœopathy. I select this, because it has been the most respectable in its origin and in the character of its advocates; because it originally arose in the midst of the medical profession; and because, in the opinion of many, it has done so much to shake the confidence of mankind in the old school, and, according to the prediction of many, is destined, in no very long period, to take its place.

As to its theory, there seems nothing in it more at variance with sound medical knowledge, than in those of Boerhaave or Cullen or Brown. It is just as good as those hypotheses which formerly divided the medical world, and no better. Like them, it is entirely destitute of legitimate evidence. But in considering the treatment of disease by Homœopathic doses, that is to say, by quantities of medicine so small that even our imagination is at fault as to their actual existence, we find it difficult to conceive that any one, who has been used to observe the effects of remedial agents on the human body, or, indeed, the effects of any one agent on another, can believe in their influence as remedies. Yet it is certain that many intelligent and educated and honest men do so believe. It would not be difficult, also, to rake up, from the past, examples of belief in remedies quite as extraordinary, and supported by quite as little evidence. But those, you will say, were opinions held in an age when the laws of evidence were not well

understood, and men were credulous because they were ignorant. But this statement is hardly supported by facts. The form of credulity varies in different ages; it may be concerned about different subjects; the real amount of it is always very much the same. It is the characteristic of certain minds, and not of certain ages. Its amount is by no means in proportion to the amount of ignorance. It may be more refined in one century, or in one class, than in another, but it is hardly less in quantity, and it appertains to men of the same cast of thought. There is nothing in the history of religious fanaticism in times past, more extraordinary than that of Millerism and Mormonism in our own times. There is nothing more extraordinary in the belief of our ancestors in witchcraft and fortune-telling, than that of some of our own brethren at the present day in the extravagances of Mesmerism. Lord Bacon believed in the efficacy of spells and amulets, and Sir Theodore Mayerne, the physician of three kings, in the remedial virtues of the heart of a mule who had been ripped open alive, and of the hand of a man who had been gibbeted. Are there not philosophers and lords and knights, who believe now in remedies, which, to the medical philosopher, present quite as little probability of efficacy as these?

But, although there are doubtless some who believe with perfect honesty, and after what they regard as a fair comparison, that the Homœopathic is the true and most successful method of practice; still it is generally true, that men medically educated believe it to be entirely negative, and that patients thus treated, so far as medicines are concerned, are practically left

to the resources of nature. Now, this being the case, it affords us a means of observing, on a large scale, the natural history of disease, as it goes through its course uninfluenced by the interference of art. The want of such an opportunity has been one of the greatest obstacles to the advance of the practical department of our profession. In its elementary branches, our science has improved, slowly perhaps, but with no uncertain steps; whilst in Therapeutics it has constantly struggled with the want of some standard of comparison. How can we judge what is the efficacy of any given method of treatment, unless we know what course disease will take without treatment? The want of this knowledge,—the knowledge of the natural history of disease,—has been the cause of almost all the uncertainty, the opposition, the vacillation in the management of disease.

This want it has been extremely difficult to supply in the ordinary course of practice. Approaches have been made to it with regard to a few diseases and on a small scale; but, in order to supply it thoroughly, it needs a long experiment on a large scale. Now, believing as we do in a greater or less amount of efficacy from our method of treatment, it has been impossible for us, conscientiously, to institute such an experiment; and the world would not support us in doing it, if we were disposed. But the Homœopathists are performing, as we believe, this very experiment; and, fortunately, such is their confidence in their system, that they do it boldly, and can keep up, in this way, that reliance of their patients on their remedies

which is necessary to the success of any treatment. It is only to be regretted that this same undiscriminating confidence on their part prevents the experiment from having its full value, since those who conduct it, and therefore might best observe it, do not scrutinize its results as philosophers, but merely gather them up as partisans. It is nevertheless our duty, without any feeling of rivalry or ill-will, to watch its progress as best we may, to avail ourselves of the fruits of what we regard as the errors of others,—as we ought to do of our own,—to enrich ourselves, as it were, with their spoils.

In a kindred spirit should we keep up a constant observation of the various attempts which are constantly making, sometimes by individuals and sometimes by bodies of men, to devise new methods of treating disease; and with a similar purpose of appropriating whatever may present itself which promises advantage. Every thing which happens to those laboring under disease,—everything which is made in any way to act upon them,—is capable, when accurately observed, of illustrating the laws of life, or of disease, or those according to which recovery from disease takes place. The more varied are the conditions under which the observations are made, the more rich will be the results; and, considered in this point of view, there is no mode of treating disease, however irregular, and in hands however ignorant, no delusion with regard to remedies, however strange, from such an observation of which useful knowledge may not be derived, either with regard to the history

and treatment of disease, or, at least, with regard to the influence of imagination and prejudice upon its character and progress. All are experiments, which, though performed for no such purpose, should really be made to operate for our benefit. We are to consider that we cannot make them ourselves. With our knowledge of the accurate relations of disease, of the uncertainty of remedies, of the great powers of nature, and with that delicate responsibility to our patients, which imposes upon us the observation of the great first law in Therapeutics, '*to do no hurt*,' we cannot run the sort of risk which such experiments imply; they require a recklessness of the result to which we cannot consent. When others choose to incur the responsibility of making them, it is right that we should reap the fruits.

In this way, I am convinced, we may, from time to time, learn much to aid us on the difficult subject of Therapeutics. We may find, that some modes of treatment which have been highly prized, have less connection with recovery from disease than has been usually imagined; and, on the other hand, that certain other measures may have been undervalued and overlooked. But, if this inquiry be always made in the calm and rational frame which should characterize the medical observer,—free from that turbulent spirit of animosity toward rival sects which we are too prone to indulge,—looking neither to the right hand nor to the left, to discover what the effect will be on our profession considered as a mere trade,—we shall be constantly adding to our stock of practical truth.

The same general principle is also applicable to the regulation of our conduct with regard to remedies, of whose composition, or mode of preparation, we are kept in ignorance. It is undoubtedly a fundamental principle of medical morality, that no medicines or modes of treatment, in short, no knowledge capable of beneficial application in medicine, which any one physician possesses, should be kept from his brethren, or indeed from the world at large. There are to be no secret means or medicines among us. Every thing is to be free and open as the air. Knowledge is the common property of the profession; and we would hold him up to universal scorn, who keeps any of it to himself, which can be made useful by others in the treatment of disease.

But this feeling, so just in itself, so honorable and so general among physicians, is carried too far, if it assumes that we should, in no case, permit the use of an unknown remedy, when the responsibility of keeping secret its composition or mode of preparation falls upon those out of the pale of the profession. This is an entirely different case. Our first duty unquestionably is to the sick. Whenever, therefore, we have good reason to believe, on such grounds of medical evidence as are usually sufficient, that any such remedy is capable of producing such beneficial results on disease as we know no better means of producing, the same professional philanthropy, the same sense of duty to our patients, obliges us to employ it.

The adoption of any such remedy or mode of treatment by a regular member of the faculty is

regarded, if not exactly illegal, yet at least, as being somewhat unprofessional, and certainly it is a course to be avoided if practicable. Still, in a great many cases, articles have been received and taken into regular professional use, although their peculiar composition or mode of preparation was unknown, because they were found better adapted to fulfil certain indications of treatment, than any of the compounds of the Pharmacopœia. But,—without mentioning particular examples of this sort, which must be familiar to those conversant with medical history,—to put a very strong case, suppose it had happened that the insensibility to pain which follows the inhalation of sulphuric ether had been produced, as was at first supposed, by some newly discovered combination of articles, the knowledge of which was concealed from us. Will any one say, that, if a reasonable probability had been established that this was actually the result, we should have hesitated to give it a trial, and to employ it, if found successful? I trust not. It would have betrayed a sort of atrocity like that, which would have strangled vaccination in its infancy for a similar reason. On the contrary, we have reason to congratulate ourselves that it received among us so ready a trial, even when some mystery was still suffered to hang over its composition; that the prominent persons, especially, in that department of practice in which, thus far, it has been chiefly useful, were so prompt to give a hearty welcome to what will probably prove to be the most important discovery in medicine since the introduction of vaccination.

I admit that this subject should be watched with much jealousy; that such remedies should be resorted to with great caution, and only where there is a reasonable probability that we can thus treat disease better than by our ordinary means. It is to be kept in view, also, that, where the nature and composition of an article are unknown to us, we should require a more careful scrutiny, a more complete array of evidence, than where a knowledge of its origin or composition aids us to judge, from analogy, what its effects are likely to be. So, too, it should always be understood, that the principle of concealment is utterly at variance with our professional code. With these limitations, the ground I have stated is not only that of the letter and spirit of our regulations, but is the only one consistent with that regard for the public good, which must supersede other considerations.

There is still another subject somewhat connected with these, namely, the relation in which we stand to irregular practitioners, or to quackery. There is much sensitiveness on this point; many are warmed with a very earnest zeal for putting it down, and we are often met by the inquiry, 'Can we do nothing to exterminate it?' But we are to recollect, in making up our judgment as to our proper course, that there are circumstances which render its existence, in some way or form, almost a necessity. There are many persons, who, from their natural temperament, and there are many others, who, under the influence of disease, cannot be satisfied with the steady, sincere, and unpretending management which the self-respect

of the regular practitioner obliges him to adopt. They require to be encouraged by hopes which are to prove fallacious, by promises which are to be broken; to be soothed and kept patient by a thousand flattering arts, which those who understand disease and can really foresee its course, and who feel bound to honesty of purpose and deportment, cannot employ. Hence a resort to quackery is almost essential to this class of patients. Happy it doubtless is to many of them, that they can have recourse to those whose ignorance, or whose conscience, does not prevent them from pretending to knowledge which they do not possess, or from professing to accomplish that which we know to be impossible.

It was formerly the case, before the limits of our knowledge were so well ascertained, and before the proper decorum of the profession was so well settled, that there were many among the accredited members of the faculty, who held, to all intents and purposes, the same relation to the sick, that this class of practitioners now do. Quackery, it is to be remembered, does not principally consist in using medicines of a particular kind, but in using any medicines in a particular way. The quackery is not in the character of the drug, but in that of the man. Quackery may strut with a doctor's diploma, or seat itself in a professor's chair, as well as ensconce itself behind piles of boxes and rows of bottles, and boast of its miraculous cures through the columns of the press. But whilst, with a gradual improvement in the standard of professional character, this class of men has dimin-

ished *in* our ranks, they have been increasing *out of* them; and, though other circumstances in the altered condition of society have partly contributed to this result, I believe that one great cause why there is more quackery out of the profession, is because there is less in it. Though we may hope that it will diminish with the increasing respectability of our profession, and with a better appreciation of its character on the part of the community, we cannot flatter ourselves that it will become extinct, since it is founded on an essential infirmity of human nature, and one which exhibits itself on other subjects,—on religion, politics, and education,—as well as on medicine. This is, then, a subject on which it is neither for our interest nor for our dignity to interfere. Any sensitiveness, and more especially any action on our part, whilst they are sure to be inefficient, are also likely to be misunderstood. They magnify the importance of this class of practitioners, and are apt to be attributed to jealousy of their success, and to our fear of being supplanted in the favor of the public.

In the remarks which have been made, my object has been to bring up for our consideration certain principles which should guide us in reference to the welfare of the profession, rather than to point out any definite course of action, or to speak of particular measures. These naturally present themselves, from time to time, to those to whom the guardianship of our institution is committed; and if we are governed by a true professional spirit, a determination to be true

to the character of those who have preceded us, we need not fear but that our future progress and condition will be such as to do no discredit to the honorable recollections of the past.

For, as I have already endeavored to show, the past history of the profession has been honorable, and it has always been devoted to the best interests of truth and humanity. It is true, various sects have arisen within its bosom, exhibiting, as sects always do, bigotry, prejudice, and intolerance; strange opinions have been entertained; an infinity of modes of practice have prevailed, some good and some bad. Bad men, ambitious men, men of a selfish and mercenary spirit, have frequently presented themselves, have often become prominent, have, for a time, impressed too much of their own character on medicine, and thus proved obstacles to its advancement. But, in spite of all this on the surface, it is astonishing to remark how distinctly the under-current has always been directed by the ruling principles of honesty and humanity. How thoroughly has age after age sifted the materials which have been presented to it. How certainly, one after another, every form of falsity, which had for a time usurped a place amidst the accredited knowledge of our profession, has been suffered to pass into oblivion, whilst whatever was true has been preserved amidst its treasures.

And such will continue to be the case. We have seen, in our day, this process going on, by which the truth, though doubted, and subjected to a severe

ordeal, maintains its place; whilst from error, though discarded, lessons of value are still educed. It was in conformity with this uniform tendency, that the great discoveries of Laennec, though received with doubt and hesitation, were, after careful scrutiny, accepted and recognized as of inestimable value. It was also in conformity with it, that the Theory and Practice of Broussais, though at one time received by a considerable portion of the medical world almost with acclamation, has not had enough vitality even to survive its author, though it has served, by the indirect lessons it has taught us, to modify, in a most important manner, various views of pathology and practice. No matter what sects arise about us holding new opinions of disease, or advocating new modes of practice. No matter how much they may, for a time, make their way into public regard, and contend with us for the favor and confidence of mankind with apparent success. The same will be our history in regard to them, the same will be their fate. From our very character and constitution, we shall be a permanent body; they, transient and evanescent. Our profession always has, gradually, and slowly, and sometimes perhaps reluctantly, selected and absorbed all the truth, rejecting the falsehood which has arisen within and around it. This process will continue. New sects will arise and decline, and others will take their place; but, so far as they advocate any just opinion, or originate improvements in practice, or illustrate important errors, the lessons they teach will survive amid the accumulated treasures of medical knowledge. Other systems will pass away,—ours

will be permanent; nourished indeed to some extent by the very elements which come from their decay, as the eternal oak flourishes and grows green for ages from the decomposition of the transient vegetation, of which generations are springing up and perishing around it.

These are serious convictions on a serious subject, a subject which has excited much attention and some solicitude. It is indeed of the deepest importance to every one who sees in his profession any thing more than a mere trade by which he is to earn his daily bread;—it is even of some moment to him. It should not pass from our mind amid the appropriate festivities of this day, nor be forgotten amid anxieties and pressing cares which await us in the labors of to-morrow. It should dwell with us, and retain its hold on our attention. We have, with regard to it, an interest and a duty; and it will be found in this, as in most other cases, that our duty is the surest guide to our interest. To establish a high standard of professional education, to give a true elevation to professional character, these should be our great purposes, as individuals and as a Society; and, if we accomplish these, a variety of others, important in themselves, will be made easier of attainment, even if they are not incidentally brought about, which is in truth most likely to be the result.

Do we propose to secure for professional labor a fair remuneration?—We cannot hope to effect this, unless we satisfy the community that we send out no candidates for their patronage, who are not qualified to claim it. Do we design to put down quackery?—

We can do it most effectually by raising up regular medicine. Is it our aim to prevent our being supplanted by new systems?—Let us take means to make the world understand that the old is better. Do we wish to prevent all intercourse between regular and irregular practitioners?—We should make the distinction so marked between them, in education, manners, and character, that they cannot intermingle. Do we desire to bring all those in this Commonwealth, who have been regularly educated, and desire to practise medicine honorably, within the limits and under the influence of the Society, a consummation which is essential to the full accomplishment of its purposes?—Let us, as far as time, space, and the necessary impediments of intercommunication render it practicable, make its presence every where felt, and its benefits every where equally diffused.

OBITUARY.

The following members of this Society have died since the last Annual Meeting.

Ent. Society.		Age.
1820,	James Hewins, Medfield,	64
1812,	Joseph H. Flint, Springfield,	60
1785,	Benjamin Waterhouse, Cambridge,	92
1844,	Henry D. Hitchcock, Middleborough.	
1836,	William W. Benedict, Milford,	50
1821,	George Willard, Uxbridge,	58
1822,	John M. Smith, Southbridge.	
1814,	John Revere, New York,	60
1834,	Samuel Wigglesworth, Boston,	35
1839,	Ephraim Buck, Jr., "	33
1826,	Erastus H. Bartlett. "	
1803,	Benjamin Shurtleff, "	72
1840,	Frederick A. Eddy, "	31
1841,	John Bertram, Townsend.	

ARTICLE VII.

ON THE

PRACTICAL METHODS

OF

VENTILATING BUILDINGS.

BY LUTHER V. BELL, M.D., LL.D.,

FELLOW OF THE SOCIETY.

Read at the Annual Meeting, May 31, 1848.

Mr. President and Gentlemen,

On this anniversary occasion, when so large a proportion of the almost thousand associated members of the medical profession of this ancient Commonwealth, has come up to this metropolis, for the mingled purposes of fellowship, of festivity, and of such instructive suggestion, as "the hour and the man" may furnish, — upon me has fallen the honorable duty of providing some topic for your reflections, and leading your thoughts in the direction of some not unprofitable, nor useless, inquiry.

It is but once in the reach of a single individual's whole life, however prolonged, that to him can be expected to fall the high privilege, the

profound responsibility, of having his living voice touch the living ear of the assembled profession of a great commonwealth. I feel that the highest ambition which fills my mind in this office, as well as the strongest manifestation of respect to the character, attainments, and tastes of an audience like this, is, that every sentence uttered should contain a fact, — a useful, available, practical fact, — or some just, candid, reasonable deduction from an undoubted basis. Willingly would be foregone all the honors and applause which the most successful literary or rhetorical effort could elicit from a gratified, but unprofited audience, could I but feel that you, or that great community of which you are, in some measure, the representatives, as well as the protectors, may not be unbenefited by my well-intended service.

In accordance with these impressions of what is due to this Society, — to this occasion, — I have selected as the topic of my address, the directly practical or mechanical applications of the science of ventilation, or rather the division of it which has been termed by writers *internal* ventilation, as contra-distinguished from *external*, in the scope of which latter is comprised the means by which towns, cities, or even large territorial districts, are rendered more salubrious, as respects the atmosphere, and its contents, appreciable or subtle.

Under the term, ventilation, philologically not very accurate or comprehensive, is intended that science, with its connected arts, formed by contri-

butions from almost all the other natural sciences, physiology, chemistry, pneumatics, mechanics, and others, through the agency of which, adequate, perfect, and certain supplies of pure atmospheric air are furnished and continued, under ascertained conditions of heat, moisture, and motion, in edifices or apartments in which the air would become vitiated and destroyed, by respiration, combustion, or other oxygen-removing processes, or made unhealthful or disagreeable by admixtures of suspended or combined foreign matters.

Under recent advances in this science, a true ventilation is designed, also, to comprehend the acoustic relations of the air, as well as its more palpable and material admixtures.

At first thought, it may appear somewhat fastidious, or even unphilosophical, to regard merely unwelcome sounds, recognized by the ear alone, in the light of offensive impurities, or rather as disagreeable additions to the medium in which we live and intercommunicate, yet no explanation will be needed by a body of medical practitioners, residing, in part, in large towns and cities, for considering the means of averting, or obviating, the annoyances and injurious irritations of painful sounds, in the same category with the disagreeably offensive, or actually malarious contaminations.

The physician in the densely populated and industrial community, must have often recognized the discomforts and serious injury from the former, to the patient on the bed of sickness, with keener

regret, than the noisome or pestilential emanations of the air, as less susceptible of being counteracted or nullified by ingenuity and care.

It is a gratifying coincidence, which will most fully develope itself as the various modifications of the ventilating system are brought forward, that the improvements which have so fully satisfied the requirements of health and comfort, as respects respiration and purity to the senses, also meet the necessities of the ear. We shall see that under the complete arrangements for atmospheric supplies, secured in modern provisions, this rather more remote requirement is completely fulfilled, — a necessity of the highest moment, as regards that somewhat extensive class of edifices, assembly rooms and halls, in which distinct and easy elocution, or the completest delivery and reception of musical sounds and literary compositions, are the principal desiderata.

Under the aids of *forced* ventilation, or that in which an independent motive power is relied upon, all varieties of system require, as a condition of their full effect, the avoidance of any direct communication with the outside air, by the closure of all windows or openings, which might admit foreign, or confuse designed vibrations. Hence, the purest efforts of speech and music are transmitted to the audience, unmutilated and unmixed, and with the least labor and pain on the part of the vocal performer. The most refined enjoyments of the musical art, the most persuasive and overpow-

ering effects of eloquence, and the full weight of instructive attempts, thus unite their claims for consideration, in this useful science, as well as the more immediate and pressing demands of body and mind, for exemption from disease, prolongation of days, and the highest intellectual and moral exercises.

It has been customary with every writer and teacher on ventilation, to commence his labors with a more or less thorough elucidation of the chemistry of respiration, and the other physiological relations of that all-essential process of the animal economy. That these are immensely consequential, no one would think of doubting, and well worth all the laborious experimenting and research which they have so long and so faithfully received. The very fact, that a half of the machinery of the human body, measured either by its capacity or its complexity, is devoted to the function of ventilating the blood, by processes essentially mechanical and chemical, demonstrates the rôle which the air plays in the support of life, and can hardly be overestimated. But, believing with Mr. Brande, and other distinguished philosophers, that neither chemistry nor physiology can afford us much direct aid in determining the quantity or conditions of air needed for the uses of men in habitations, — that, like food or clothing, it is a practical question, to be solved only by experience, I do not propose to dwell upon these indirect subjects, already so well understood by the profession, and upon which the

fullest and most trustworthy authorities are accessible at every hand.

Indeed, it seems to me, that the experimental investigations which are to aid us in applying results to useful purposes of existence, are only those in which, (to use the words of Dr. Reid,) men in bodies and aggregations are regarded in the light of matters for chemical examinations and trials, while their habitations, from palaces to prisons, are the pieces of apparatus, in which the analyses of results are to be wrought out, by patient and oft-repeated tests.

Nor do I intend to open to any considerable extent, the pathological considerations, — the character and causation of the multiform diseases, connected with that deterioration of the medium of life, which it is the object of ventilation to prevent and to cure. This connection has grown into an importance, under " this new era of sanatory reform," as it has been so well called, its bearings have been so fully studied, that to do adequate justice to its claims, the original evidences from the experience of the old world, must be examined by volumes, not in abstracts.

An able writer on Military Engineering, observes in relation to his art, that facts, which are the deductions of long and tried usage, hold in many instances, the place of principles. This axiom appears equally applicable to the practice of ventilation. An art made up of the contributions of so many departments of knowledge, involving so many difficulties in these combinations, and subject to so

many modifications, almost as numerous, in fact, as the individual examples, can be safely grounded only on experience. Perhaps in no other instance of the application of science to the arts of life, has it been found so unsafe to act from pure scientific deduction, or where trial would more annoyingly demonstrate, how widely fluids, whether gaseous, or liquid, act in practical usage, from what they seem bound to do, in legitimate accordance with theory.

I would not be thought to undervalue an abstract knowledge of the sciences, involved in the theory of this art, but only require that the practical application should be studied and determined, rather in the light of antecedent successful and abortive trials, than on any a priori reasoning.

Sir Humphry Davy, in the zenith of his fame as a chemical philosopher, utterly failed in ventilating a single assembly room, under the most favorable circumstances. Men of infinitely lower attainments, profiting by a long series of examples of all grades of perfection, are now able to succeed under the most complicated and embarrassing difficulties.

The means of ventilating buildings have been brought to their present advanced and successful state in Europe, rather by successive steps — by a gradual gain of new points upon old, than by new discoveries or inventions. In this mode, will the art go on to a still higher grade of completeness, and hence the necessity of a thorough understanding of what has been done, to avoid the repetition of ex-

periments, which may have been tried and have failed again and again. Viewing our object in this strictly practical light, and believing from its very nature, that no marked novelty can ever be expected to replace all that has already been attained, as it is not unfrequently the case, in certain mechanical ends, I propose, as the most practical and available method to aid a community like ours, in search of this auxiliary to health and comfort, to bring forward, and briefly explain the plans which have stood the test of adequate trial, in various countries, and under various conditions of climate and occasion. From these will then be separated the points and principles which appear to be ever present and essential. The way will thus be opened for the means of judging of the relative value of the modes of bringing about satisfactory results, which are found to be constant, and the circumstances which determine an election of individual varieties, among the many ways of accomplishing the same end.

I am aware that the suggestion, that there is no well founded reason to believe that any of the modern improvements in ventilating are to be considered in the rank of new discoveries, will strike many persons, who have only read the books of certain claimants of original methods, as indicating an uncharitable disposition to detract from the merits or honors of origination. A disinterested investigator, removed from the influences of national, partisan, or personal partialities, I cannot but think, on fair adjudication, will feel full confidence, that the ad-

vanced specimens of modern ventilation are due only to the unbounded opportunities of carrying out well recognized ideas of long standing. Dr. Reid's plans, which doubtless have been regarded as new, by those deriving their sole information from newspaper paragraphs, or critical reviews, will be found, when fairly analyzed, only the fruit of well understood principles, applied with very advantage of mechanical skill, and unlimited expense, occasionally carried to an extreme of refinement, fastidious and finical.

Any one who will run over the annals of science, can go back to the very fountains of medicine for the earliest recognition of the importance, and indeed, for some of the practical methods of this department of hygienic and sanatery protection. Moses appears to have comprehended the nature and importance of external ventilation, as shown in the geometrical and systematically arranged encampments of the children of Israel. Two thousand years ago, Hippocrates treated of the value of a pure atmosphere, its influence on life and disease, and laid down rules for securing this object, with a clearness and truth, which demonstrated that his wonderful tact and observation, so many centuries before the constitution of the atmosphere, or the chemistry of respiration were dreamed of, had given him the most correct and practical notions of its importance.

Celsus, in his instructions as to the treatment of fevers, directs the air of the patient's room to be pu-

rified by a fire lighted in a fire-place — involving the same principle of rarefaction as Dr. Reid's Parliamentary ventilation. Agricola, in the sixteenth century, appears not only to have recognized the necessity of introducing pure supplies of air artificially, but has suggested, or at least recorded for our instruction, the very means for producing an upward current of vitiated air, by fire applied to the exterior of a metallic tube, through which the air was thus speeded by diminished gravity and partial vacuum, long after adopted by Davy, and, as we shall have occasion to observe, forming the basis on which various commissions in modern times, have ventilated the most important public edifices.

The real constitution of the atmosphere, we know, was a mystery, until analyzed and its action on the system developed, by Priestly, Scheele, Black, Lavoisier and Davy, and that brilliant galaxy of chemists and physiologists, which flourished towards the beginning of the present century. But its mechanical properties, and its practical relations to health and life, were as well understood and as well applied half a century before. In 1727, Dr. Desaguliers, and soon after Dr. Hales applied pumps, and in years subsequent, centrifugal wheels or fans, and flues urged by fires, directly or collaterally. In fact, most of the means, which ingenious men manipulating with a fluid, the mechanical properties of which were perfectly understood by them, would naturally adopt, were actually introduced to accomplish movements and results, which were alike manifest to them. Pris-

ons, shops, and legislative halls, hulks and hospitals of all kinds, were provided with apparatus to give them pure and healthy air, and our present plans are but little more than the ruder schemes of the old, and quaint projectors and philosophers, verified under circumstances of more enlightened society and wider means.* Many of these enthusiasts in ventilation only lived before their day, and it is truly painful to read, that men, the correctness of whose ideas in science, and the elevation of whose philanthropy entitled them to respectful gratitude, were obliged to dance a fruitless attendance, on sneering and ignorant functionaries of government, or even had plans, which in principle were equal to those now in successful use in our best examples, turned into ridicule and rejected, by the mischievous interference of the mere menials whose tempers or whose interests were not suited.†

I am prepared to assert, after a diligent recurrence to the original accounts of these men, that the essential points of all modern contrivances, except the single one of producing an exhaustion by the admission of a jet of steam, were all anticipated in their writings. No man of our own age, in my opinion, can sustain any higher claims to original suggestion, as regards internal ventilation, than should be accorded to ingenious and well matured

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* Fig. 1, Pl. 1, represents a method of exhausting air from mines, copied from a drawing in the Phil. Trans. for 1665. The fire in the grate produces a current through the box, *b*, connected with the mine.

† See Desagulier's Philosophy, vol. II. p. 561. Fig. 3, of the same plate, represents the system invented by Mr. Sutton, an eminent brewer in London, and much employed about the same period. The foul air flues from the hold, were admitted under a ship's coppers, or other fire.

adaptation, more completeness of detail and higher refinement of results.

The English, since 1835, in consequence of the destruction, by fire, of their House of Commons, and the determination to construct a national palace for the Legislative Representatives of the kingdom, on a scale of magnificence and completeness, unapproached in modern architecture, have devoted, under the patronage of Government, and the impulse which a general turning of attention to a subject of universal utility would naturally give, a great amount of research and ingenuity to the means of ventilation of all kinds of habitations of men, on land and water. The accounts of many of the most complete of these undertakings, drawn up with the utmost minuteness of detail, and the record of their operations verified with mathematical certainty, are before the world. Their worth as contributions to the cause of science and philanthropy, is not to be undervalued, yet it is not to be concealed that, thus far, there is no evidence that the British attempts have proved more advanced in science or success, than those reached by their neighbors across the Channel, under the guidance of Gay-Lussac, Thenard, and others, who have pursued their investigations and applied their results, in that quiet and unobtrusive, yet thorough research, which so eminently characterises the labors of the French *savans* in every field of scientific pursuit.

While the opinion is thus confidently offered, that no great or original discovery can be justly

asserted in modern ventilation, a denial which detracts little or nothing from the honorable claims of those, whose skilful adaptations are as useful as if they had the element of originality in them, it is humiliating to be obliged to confess that our own country stands lamentably in the back-ground, in this important provision. It would be difficult, if not impossible, to point out half a dozen specimens of buildings, ventilated in accordance with the full application of principles, tested elsewhere successfully for years, although it must be accorded that in view of our climate, our habits of life, our great disposition (beyond example) to constant and protracted accumulation of numbers, for purposes of business, instruction or amusement, by night and day, no community in the civilized world, more really and urgently requires the aid of the ventilating art, so far as regards its important ends of comfort and health.

Our common school system, in which minds and bodies are moulded at the plastic period of life into forms to be retained, and I may say without trenching on the domain of new theories or speculations, perpetuated, offers a more urgent appeal for attention, than can be imagined in any old world institutions.

We, too, are becoming rapidly a manufacturing people, to follow in the awful footsteps of our prototypes, the world over, unless we can do that most difficult of moral feats, profit by the unfelt experience of preceding races. We are doing what

the world has no historical parallel of, in building towns and cities. A few men of giant energies, of boundless faith, of far-seeing calculation, sit down in the counting-rooms of this city, with a surveyor's sketch, and a few engineers' levels. They decide that a town shall be built — a manufacturing city erected. Straightway, and almost like the falling, opening, raising, changing scenes of the theatre, huge brick palaces arise, streets in long perspective of shops, schools, houses, side-walks, begin to stretch themselves out from a thousand nuclei, to meet the new formed elements in exact symmetry, like the points of ossification in the growing embryo. Churches point their spires to the skies, in all the beauty of Gothic tracery, or plant their firm columns of stone, in all the solidity of Grecian art. In short, what the conquerors of the world have been lives and centuries in designing and accomplishing, is called into existence by our merchant princes, almost with the wave of Prospero's wand!

Would that the same prophetic and far-seeing vision, which pierces so clearly into the distant future, as to warrant these unbounded outlays, — the same forecast, which casts its bread upon the waters with so lavish a hand, in the confident expectation of a bountiful return — which boldly cuts down hills and fills up vallies to accommodate the hundred thousand inhabitants, presenting themselves in the misty future, while the grass is still green in the projected avenues, — would that it could, at the same time, foresee and prevent, the

disease, the death, the misery, the moral, social, as well as political ills, which appear, upon the best of evidence, to go hand in hand with neglect of plain sanatory precautions, — and realize the illustrations unnumbered from experience past, which tell with demonstrative certainty, that moral and social degradation are indissolubly linked with disobedience of nature's laws.

I blame not these founders of cities, that they have paid but little regard to hygienic and sanotary measures. It is glory enough to build cities, — it is too much to expect the same minds which can grasp all the elements essential to these great undertakings, in a commercial point of view, should comprehend all the mysteries of typhus, struma, or contagion, and the relation of these to ventilation, sewerage, and water supply. It is for our profession to step in at this point, and to guard the rights of generations yet unborn, in these respects, and the wise interest, the sagacious foresight, the honorable ambition for unmixed success, will guarantee the co-operation of the builders of cities, whenever they are convinced of the reality of the evils, and that they are susceptible of prevention and relief.

The "ghastly bills of mortality," as they have been termed by an English statistician, (under some overlooked or mistaken modifying circumstances perhaps,) of one of our new cities, the prevailing impression of the unhealthfulness already of our lately populated manufacturing towns, call aloud

to the medical profession to look at the growing evils of hygienic neglect, full in the face, and if they require a plenary and decided remedy, however costly, it will not be long in being found.

It might not be out of place, were it of any probable utility, to inquire into the causes of this want of advance generally, in an art so universally admitted, in language, to be important. We scarcely ever read the description of a new assembly room, or theatre, or hospital, or penitentiary, in which we do not find laudatory and congratulatory notices of the excellent provision for ventilation. This provision, of course, in ninety-nine cases out of a hundred, is nothing more than some small holes left in the ceiling, the inefficiency of which has been notorious for a hundred years. Still such a general recognition is sufficient to prove a general necessity.

Our inefficiency cannot be from want of acquaintance with what has been done in other countries, more advanced in the arts of living, since the books detailing the necessities and the modes of meeting them, in the most authoritative manner of investigation, are known to every scientific inquirer, and are to be found in every considerable library.* We must rather ascribe our backwardness to the same general causes, which have kept architecture, both as a useful and an ornamental art, at so low an ebb, throughout our country. One of these is, that

* Appendix D.

for the moderate capital we have to devote to such purposes, we have an undue desire, a morbid ambition to produce more of splendor and show, than is compatible with permanence, completeness of interior arrangements, or regard to hygienic considerations. Anything out of sight, like the deep and enduring concrete foundation, the inverted arches of support, designed to meet the possible failures of succeeding centuries, or the concealed arrangements needful for a thorough and universal ventilation, which must commence almost at the corner stone and be kept in continuous design until the last finish, would be struck out, in a vast majority of instances, from the architect's specification, (if he dared to suggest them,) as an expense which might be saved without being felt. On the other hand, the dome, the spire, the columns, the pilasters and balconies, some of which, as mere ornamental appendages, could be added at any time, now or a century hence when funds might be more abundant, or never, would be adhered to as essentials, as indispensable.

Despite the science and mature experience of a thousand European attempts, fully and exactly detailed in the unmistakable language of description and pictorial representation, our Building Committees would assuredly, after making their personal inquiries among the hundred interested patentees or dealers in new furnaces, chimney-tops, revolving turn-caps, and the like, conclude that, amongst so many *practical men*, promising in their

advertisements and circulars, so many cheap and effectual methods of doing that which the old world artists consider so difficult and expensive, some ready measures would turn up, when their part of the duty was finished.

The most costly edifice in the northern states, just finished with eternal granite, on foundations based in the ocean, at a cost of a million of dollars, is an illustration, an abundance more of which could be easily adduced, were not the task an invidious one. Proposals for heating and ventilating were advertised for, after the building was finished!

I would not, however, be understood to criticise, with undue severity, an unacquaintance or neglect, for which our profession would certainly be obliged to assume a fair proportion of the responsibility. It is to be considered, that ventilation, however appreciated by the scientific, is only gradually forcing itself into the notice of ordinary minds, to whose practical experience a predominating weight of deference must naturally be paid in a new country. We have yet scarcely a class of architects, whose character or attainments are sufficiently acknowledged, to allow their judgment and taste to overrule the occasionally absurd phantasies, or conceited presumption of Building Committee majorities.

A new country, engaged in burning up the original forest as rapidly as possible, in laying deep the basis of civil and political institutions, in taking care of things indispensable to actual existence,

cannot be expected to provide for all present — much less future and contingent evils. Had those who laid out the three-mountain city, by taking the cow-paths, or no more positive indications, as their guiding lines, seen that in a couple of centuries it was to be a great metropolis, yielding all the moral and social good and evil of a great city, how widely different would have been the expanse of their views, and the modes of applying them in practice!

Could those now on the stage, see the hundred and fifty thousand of the population of it, and its suburbs, quadrupled in a hundred years, how much ought they to learn by the present condition of analogous cities of the old world. What has been will be; and we can read no plainer augury of what we are to be socially, and municipally, than to apply the lessons presented by our mother country. Sir Christopher Wren, after the ground was all laid open in London by the great fire of 1666, matured and delineated a plan, lately rescued from oblivion and published, by which that city was to be constructed, as regards the great provision of pure air to its inhabitants, so as to secure its healthfulness to all future time. Could the citizens then on the stage, have had that faith, which now seems to have been so obviously irresistible, what myriads of lives, what a boundless extent of disease, moral wretchedness and misery, would have been saved! Yet in New England, we see thousands of houses constructed on the marine marsh, with scarce an inter-

vening yard of gravel, perhaps not a foot, between highly finished and furnished mansions, and that awful quagmire of decomposing animal and vegetable remains, the emanations of the pestiferous gases from which, penetrate the closest interior, and leave the stain of their chemical action upon the valuables contained — still more is it to be dreaded upon the bright faces and active lungs of the youthful inmates, called into existence, in habitations suspended over this sea of corruption!

Besides these natural obstacles to sanatory provision in a new country, we have undoubtedly indulged the fallacious hope or impression, that our peculiar climate, or abundance of space, would save us from the consequences of those violations of sanatory laws, elsewhere followed by the direst penalties; and as every new settlement is pronounced salubrious, until disease and death afford undeniable proof to the contrary, so we have waited to have an overpowering weight of unequivocal evidence of the injurious influences of neglected ventilation, before it is deemed worth while to act. These evidences have been slow and gradual in coming. Our cities have not been much compressed with living masses, our penitentiaries, almshouses, and hospitals, have been too few and on too small a scale, to present the lesson so as to be clearly read. Manufacturing establishments, where hundreds are engaged in labor within reach of each others' inhalations, with their crowded boarding houses, in which the operatives are almost piled at night, so that only a few feet of

space separates the lungs of each denizen of a large town, constitute emergencies of but yesterday. Still more, the rapid growth of many of our commercial towns, increasing from hundreds to thousands, as it were, in a night, carrying them, with no intervening space for adaptation and experience, from the rank of mere villages to great cities, has given them no warning, nor led to any protective measures against the physical or moral evils, which are incident to these "great sores on the body politic,"* whether in the new or old world. In short, the call to alleviate and provide for the consequences, necessary and unavoidable, of great accumulations of human beings, poverty, filth, disease, and death, comes at once, without premonition. The imperious necessity, and the skill, intellectual and mechanical, to meet its pressing demands, follow in that slow succession, which leaves thousands of victims in the track.

Our present demand for internal ventilation as a domestic necessity, has also been strongly influenced by the change in the modes of heating, within a few years. The roaring fire-place, built with an open-mouthed immensity of voracity, as if the struggle were to aid in getting rid of the primeval forest, — in which the Roman poet's verse was practically illustrated in every household,

——— ligna super foco,
Largè reponens ;

—has been replaced by furnaces, stovés, air-tights,

* Jefferson.

of all forms and shapes which caprice or ingenuity has invented. The sweeping flood of air, which carried with it, in its course, the most liberal indraughts of the pure breath of heaven, compensating for the abduction so largely of the warmed air itself by the radiated caloric of the blazing pile, has been dammed up, and that almost entirely. The re-respired, roasted, ill-conditioned air of the dwellings even of the rich, is the result of a parsimonious economy, which strangely and absurdly exists as to this, in a thousand instances, where comfort and luxury make no other sacrifices to saving. *Fuel saving* is one of the cardinal virtues, in the housekeeper's creed, while provision saving, or pure water economy, would be scouted as the height of meanness, or uncalled for self-denial.

Be all the circumstances of defective sanatory provision, (of which ventilation is surely one of the most pressing,) what they may, there can be no question that the results of impure air, are upon us, in all the malignity and infection of the old world in degree; and even since we last met, and in our midst, amongst our associates, the Angel of Death has hovered around, sending his fatal shafts to pierce some of the noblest sentinels of our ranks, and warning us, that if we would improve the sad experience of older countries, we may not longer delay our defensive preparations against that most broad spreading missile of destruction, poisoned air.

In that unfortunate over self-estimation, which, happily, is now beginning to be felt and acknow-

ledged as having formed almost one of the characteristics of our national identity, we are accustomed to speak of ourselves as a long-lived people, inhabiting most salubrious climates, and advanced to that grade of civilization and general education, in which the laws of nature were recognised and obeyed, as well as the laws of revelation and of the social compact.

Reposing self-complacently in a presumption of this kind, (unfounded, it is true, as statisticians amply demonstrate, as far as health and vitality are concerned,) we have felt less called upon, than communities conscious of their own deficiencies, to search out and correct any of those prejudicial influences in hygiene, which bear upon the probability of life.

This is not the occasion to examine the important question, how far, as New Englanders, we compare with other communities in life and health. The simple fact that the tables of life probabilities, deduced from the experience of the crowded, poverty oppressed nations of the old world, the victims of so many circumstances, moral and physical, calculated to influence health and shorten existence, are practically found not inapplicable to a New England population, at the present time, casts a most melancholy foreboding upon the prospects of coming generations, when all the health-influencing concomitants, whether of penury or luxury, of a dense population, are added to our already prolific life-abridging influences.

An associate of this Society, Dr. Jarvis, in a report, as Chairman of the Committee of the American Statistical Association, appealing to the Legislature at its last session, for a sanatory survey of the Commonwealth, demonstrates this important fact so conclusively that I cannot forbear to leave the proof on record. *

How wide spread and active one of these life-shortening causes, the daily, hourly inhalation of vitiated air is, may be deduced most conclusively, though from its nature, only generally, from the universal

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* We may be a favored people in many respects; but, in comparison with some other nations, we do not enjoy the highest degree of life.

According to the best calculations, the average longevity of the people of this state is less than in Sweden, France, and some counties of England; and it seems to be less here now than it was in the past generation.

The average age of all who died in Geneva, Switzerland, from

	1814 to 1833,	was	40 years 8 months
Massachusetts from	1842 to 1845,	"	33 " 0 "
" in	1842,	"	34 " 9 "
" "	1843,	"	33 " 10 "
" "	1844,	"	33 " 9 "
" "	1845,	"	30 " 3 "

The average age of all whose deaths are recorded in

Massachusetts, in	1842,	was	34.9 years 9 months
"	1845,	"	30.9 " 3 "
Concord,	1779 to 1808,	"	39.9 " 7 "
"	1809 to 1842,	"	36.9 " 0 "
Dorchester,	1817 to 1829,	"	33.9 " 11 "
"	1830 to 1843,	"	31.9 " 2 "
Boston,	1811 to 1820,	"	27.7 " 3 "
"	1831 to 1840,	"	22.7 " 9 "
The average age of the living,		was in	
England in	1841,		26 " 7 "
Massachusetts, in	1840,	was	25 " 10 "
United States in	"	"	22 " 8 "
And in the northern states, including New England, New York, Michigan, Wisconsin, and Iowa,			23 " 3 "
In the middle states, south of the above, and north of North Carolina and Tennessee, - - - - -			22 " 0 "
In the states south of the middle, - - - - -			19 " 5 "

experience of men in all places. Numerical facts, collected with cautious observation, and over long periods of time, justify exact conclusions, as respects those bodily conditions, which language is precise enough to specify. Yet how few, how insignificant are those truths on this subject, capable of being exactly recognized and statistically recorded, compared with the infinitely wider spread, more penetrating evils, which can be conveyed only in the words of general impression and personal conviction.

When the laborer is drawn from the well, the vat, or the mine, asphyxiated by immersion in carbonic acid gas, or is smitten with instantaneous death, by the noisome burst of phosphureted or sulphureted hydrogen, or ammoniacal gases of a Parisian sewer, we see an extreme exhibition of this causation, in palpable and undeniable prominence. In the deadly typhus of jails, emigrant ships, or other dwellings of numbers and misery, we can as little doubt the fatal consequences of impure air. When we examine the immense mass of sanatory documents, collected under the Parliamentary inquiries of the British government, detailing the connection between the damp, unventilated lanes and cellars of Liverpool and Manchester, and the prevalence of struma, phthisis, rachitis, fevers of all types of malignity, from simple ephemera to deadly typhus; in fact, of almost every form of acute or chronic diseases, which constitute the great outlets of human life,

we recognize an equally unbroken link in the chain of cause and effect, antecedent and consequent.

The experience of the celebrated Black-hole at Calcutta, in which one hundred and forty-six persons were confined over night, within a space of about five thousand cubic feet, showed the singular fact, that the deaths of all but twenty-three from immediate suffocation, were not more directly the result of vitiated air, than that of most of the survivors within a few weeks after, of putrid fever.

Dr. Southwood Smith, in his testimony before the Commission for inquiry into the state of large towns and populous districts, observes, that it is no exaggerated statement to say "that the annual slaughter in England and Wales, from preventible causes of typhus fever, which attacks persons in the vigor of life, is double the amount of what was suffered by the allied armies in the battle of Waterloo." Add to this the appalling fact, that each death from typhus implies from seven to twelve persons dragging out a long and painful sickness, under circumstances of the greatest privation and misery, and we shall realize the terrible extent of suffering within the power of relief.

Yet how little do we comprehend of the extent of the evils of the depraved *pabulum vitae*, atmospheric air, from these palpable, tangible illustrations. Dr. James Johnson, in his striking and impressive manner, remarks, in his Diary of a Philosopher, in discoursing of the evils of impure air, that "ague and fever, two of the most prominent

features of the malarious influence, are as a drop of water in the ocean, when compared with the other less obtrusive but more dangerous maladies, that silently disorganise the vital structure of the human fabric, under the influence of this deleterious and invisible poison."*

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* (*Extract from the Report of the Registrar General.*)

"Out of an equal number of males living, there were three deaths in London for every two in the healthy counties. Out of 1,000 boys under five years of age in Surrey, and 1,000 in Sussex, 48 and 50 died annually; out of 1,000 in London, 93 died annually. The mortality of children under five years of age, is twice as great in London as in the adjacent counties, including several towns.

"The excess of deaths in London is not the result of climate, for the climate differs little from that of surrounding counties; and some of the London districts are not more unhealthy than many country districts. Take Lewisham, for instance, comprising Blackheath, Sydenham, Eltham, and Lewisham itself. The annual mortality of females was 16, of males 18, in 1,000.

The actual deaths registered in London during the seven years 1838—44, were - - - - - - - - - - - - -	342,000
If the mortality during the period had not been greater than in Lewisham, the deaths in London would have been about - - -	244,128
Excess of deaths in London, - - - - - -	97,872

Here are 97,000 deaths in seven years, from causes peculiar to London. Other districts may be taken in the place of Lewisham, but the result would be the same.

"A considerable part of the population of London is recruited from the country; immigrants entering chiefly at the ages 15 to 35, in a state of good health. The sick and weakly probably remain at home; many of the new comers too, unmarried, when attacked in London by slow consumption — the most fatal disease at the ages 15 to 35 — return to their father's house to die; so that the mortality of the great city is made to appear, in the returns, lower at those ages than it is. If we take children under five years of age, where neither these disturbing causes nor occupation interfere, the deleterious influence on health, of London in its present state, will appear undisguised in all its magnitude.

The deaths registered in London under 5 years of age were - - -	139,593
The deaths, if the mortality had not been higher than in Lewisham, would have been - - - - - - - - - - - - -	80,632
Excess of deaths in London among children, - - - - - -	**58,961**

The British Government has long evinced the most high-minded and liberal policy, fully repaid by the returns to human health and happiness, of aiding science in its researches, as respects those great points of inquiry, which, however consequential in their bearings, can, from their magnitude and complexity, only be elucidated on the largest scale, and by authority. Among the immense mass of facts, bearing on man and his diseases, ever in the process of collection, and accessible to proper examination, are the reports of the army and navy medical officers, on the sickness and mortality of troops stationed around the globe. "These," remarks Mr. Hood, "prove most clearly the immense effect upon human life, produced by small and almost inappreciable differences in the quality of the atmosphere. For, in the same class of persons, performing the same duties, and placed as exactly as possible in the same circumstances, the average mortality varies in different parts of the world, from 1.57 per cent. to 66.83; or the mortality is nearly forty-nine times as great in some localities as in others."*

"Here are more than 58,000 children destroyed in London within seven of the last ten years."

Ninety-seven thousand deaths in seven years, from causes peculiar to the "comparative health" of London! Fifty-eight thousand children destroyed in London, within seven years, by removable morbid agencies! Three deaths in London, where there might be two! The chances of infant life in London, reduced one-half below even that very unsatisfactory standard elsewhere realized by sanatory arrangements!

* These reports contain the results of twenty years, and present the follow-

Did the hour or the scope of my design permit the general consideration of the effects, immediate and remote, of the pulmonary imbibition of the gaseous agents into the human constitution, under all their forms and combinations, how could I so powerfully illustrate my subject, as by bringing to your minds the great discovery of our age, connected so intimately with the name of a distinguished associate of our number, — a discovery already world wide, in the glory reflected on the land of its birth, upon our metropolis, our profession, as it is in the blessings it has conferred upon our race — a discovery, which, with vaccination, forms the two great triumphal columns in the world of medical science, — the *annihilation of pain by the inhalation of the vapor of ether?* If in our hasty illustrations of the influences of the gaseous mixtures of the air we breathe, upon health and life, we see disease, pain, death, horror, in the inspiration of the pestilential vapors of many names — in this we see health, relief, blessing, extasy! If those bring with them,

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ing per centage of deaths per annum, among white troops only — native troops being excluded:

	Per cent.		Per cent.
British Guiana,	8.4	Sierra Leone,	48.3
Trinidad,	10.63	Cape Coast Castle,	66.83
Tobago,	15.28	St. Helena,	3.3
Granada,	6.18	Cape of Good Hope,	1.37
St. Vincents,	5.49	do. Frontiers,	.98
Barbadoes,	5.85	Mauritius,	2.74
St. Lucia,	12.28	Ionian Islands,	2.52
Dominica,	13.74	New Brunswick,	1.47
Antigua,	4.06	United Kingdom,	1.4
St. Kitts,	7.10	Canada,	1.61
Jamaica,	12.13		

"blasts from hell," this, this truly "breathes airs from heaven!"

Proceeding then, in that strictly inductive method I have intimated as being essential to reap practical and applicable advantage in this art, I shall endeavor to sketch a brief but substantially complete account of the modes of ventilating various kinds of habitations, selected from the most successful and well tried examples. Having no particular preferences for, or convictions of the superiority of any given system by itself — confident that various considerations may render, sometimes one, sometimes another the more eligible, I shall not confine myself to a few methods, but endeavor to point out the prominent features of all the really tried arrangements.

I hardly need explain or apologize for the fact, that only a mere outline, an unclothed skeleton as it were, of the subject, can be presented within the compass of an hour, compelling a resort to pages omitted, to notes and appendices, for much of the exact and practical details, from which alone a clear understanding and ready adaptation of the labors and experience of others can be secured to our own community. It is fortunate that the precedent of so many of my distinguished predecessors, on this occasion, warrants a departure from what is written, which under other contingencies, would be so obnoxious to just objection. In this, as in most mechanical descriptions, knowledge, to be available, must be exact, precise, and specific; and the aids

perhaps of diagrams, mathematical formulæ, tabular deductions and results, and other matter not capable of being presented orally — addressed to the eye rather than to the ear — are essential to a full impartment of the subject.

With aids like these, it would seem that the art of ventilation could be brought intelligibly to the most moderate mechanical ingenuity, and that a few hours study would justify that self-reliance, which would prevent the professional man from giving place to merely artizan ability to repeat what has been done before, irrespective of differences of circumstances, and to protect the community against a presumptuous and bold empiricism, promising great results from insignificant means.

It may not be out of place to observe, that most of the examples which will be adduced as illustrations of the best results of modern ventilation, have been critically investigated by your speaker, during a recent short visit of exploration to the old world, devoted to this and some few other topics, connected with the completeness of our public institutions.

This declaration is advanced from no vain desire to give authority to opinions by any assumed weight of credibility as an eye witness, but from the notorious fact, that the accounts of most of these great works having been drawn up by their immediate friends, supposed inventors or suggesters, some safeguard seems proper against the undue partialities and extravagant eulogiums, natural enough to enthusiastic men, even when honest and disinterested.

It is worth while to mention in this connection, that almost all our accounts in the regular treatises, of improvements in heating and ventilation, are from writers, hardly standing in that disinterested position, which entire disconnection with the successful result of plans, would enable them to claim. The books on architecture, have hardly a page in a volume devoted to this subject. Some of the best known works make no reference to it whatever; and others merely sufficient to constitute an entry in the table of contents. A judicial mind thus becomes necessary, to separate the claims of interested partiality from the cool results of fact and experience.

The first illustration will be drawn from the recent arrangements under Dr. Reid's direction, for ventilating the English Houses of Parliament. This constitutes so marked and prominent an instance of the modern attempts in many of the works, that a brief history of still anterior trials on the same field may not be irrelevant. We can, in fact, upon this spot, trace the progress of the ventilating art almost from its first rude and undigested beginnings — at which I humbly conceive, we in this country now stand — up to that point of luxurious perfection, in which zephyrs, sifted and washed, cooled in icy passages in summer, and gently softened by the proximity of steam in winter, as well as impregnated with the balmy fragrance of "Araby the blest," are admitted in gentle and imperceptible volumes, — weighed and gauged, as it were, to fulfil the required demand.

From the varied ages and temperaments, the often impaired constitutions, the luxurious habits, the intellectual activity of so large and important a body, charged with so high functions, compelled to be together for many long hours at night, under circumstances often of the most intense attention and excitement, a defective ventilation must have been early recognized, and measures of relief projected. The illustrious Sir C. Wren, the original architect of the late edifice, as well as of all the best structures of the English metropolis, introduced nearly the same rudimentary method, so common with us, a specimen of which in fact ornaments, if it does not improve, this our anniversary assembly room. "At each corner of the house, in the ceiling, he made a large square hole, which was the bottom of a truncated pyramid, that was carried six or eight feet into the room above, and which was opened or shut with a kind of lid." "But it often happened," continued the describer of this early plan, "that when the pyramidal funnels were opened, the air above, being colder and denser than what was in the house, descended through the pyramids and annoyed the persons who sat beneath them;" one of the fatal objections to this plan which exists in undiminished intensity down to our days.

To obviate this difficulty the celebrated philosopher, Dr. Desaguliers, was called upon to devise a remedy. He constructed in the attic above the hall, a fire-place, the back and sides of which were of iron, forming a cavity, the upper part of which opened

freely into the atmosphere through the common chimney, while tubes from the truncated pyramids opened into the bottom of the box thus heated. * The obvious rarefaction produced an upward draught of vitiated air from the ceiling of the assembly-room. The activity of this current and the consequent change of foul air for fresh, would depend upon the amount of fire, and the freedom with which the replacing supplies were admitted below. From his description, it does not appear as if the Doctor appreciated fully the necessity of this last provision to a complete working of a ventilating plan. The effect of his arrangements, comprising so much of the true elements, as to render the remaining almost certain to be discovered on a fair trial, was defeated by the mischievous interference of an upper female domestic or house-keeper, who was deprived of some apartments by the occupancy of the space by the philosopher's apparatus.

In 1736, Dr. Desaguliers again introduced into the same edifice, the common centrifugal wheel or blowing fan, probably using it for the first time to propel fresh air into, or exhaust vitiated air from inhabited apartments. This machine for giving motion to air, is now in too common use in the arts of life to require a description. As a cheap and mechanical contrivance in winnowing grain, in furnishing liberal supplies of oxygen to facilitate the combustion

* Fig. 2. Pl. I. *c*, *c*, are the pyramids, now closed at the top, opening over the hall and connected by the flues *e*, *e*, with the cavities x, x, of the enclosing iron box *a*; *b* is the fire grate, fed in the attic *r r*.

of anthracite and other fires in steam engines, in producing a copious evaporation where rapid desiccation is required, and other purposes in the arts, it is widely employed; its rotary motion being given by steam, water, horse, or human power. As the exterior of the case covering the wheel, or the opening at the centre, is connected with the apartment, so will be its effect in throwing in, or sucking out the contained air. The natural practical result of this property is, that to accomplish the first of these processes, the apparatus is placed below, in the cellar or basement; for the latter, in the attic, or above the apartment.

The Doctor's machine was driven by the power of a single laborer. The fan is described as being seven feet in diameter, and having twelve floats or leaves. The speed was doubtless as great as so limited a power could maintain.

This was the sole apparatus employed up to the year 1820, when an ingenious French nobleman, the Marquis de Chabannes, introduced his method, which had previously attracted considerable attention from its efficiency at the Theatre Royal, Covent Garden. It consisted, essentially, of a large trunk or chimney, opening at the centre of the ceiling, into which various smaller flues carried from the galleries, or other neighboring cavities, were admitted. A number of cylinders were placed high up in this main foul-air chimney, into which steam was admitted, from a boiler below or above, as might be convenient. The air, rarefied by contact and radiated heat from these cylinders, would ascend, and its place be immediately supplied from the vitiated air,

provided fresh supplies were properly admitted below; a point of great importance, now specially regarded, but, as before suggested, much overlooked in the earlier attempts.

The House of Lords, a much smaller apartment, does not appear to have been regularly ventilated, until within quite a late period. In 1811, Sir H. Davy was desired to furnish a plan, which duty he discharged. The following is an outline of his project. A grate or fire-place for the combustion of coals, was constructed in the attic, through the midst of which fire a tube of iron a foot in diameter was carried, so that the whole exterior of the cylinder was surrounded by the burning fuel. This cylinder was continued downward, in a copper tube of the same size, so as to open in the top of the ceiling, and upwards to the roof.* Sir H. Davy did not overlook the necessity of a free admission of air to replace that withdrawn, nor the importance of its not being admitted in unhealthy or unpleasant draughts or currents. This fresh air, whether warmed or of its natural temperature, was admitted through a multitude of perforations in the floor. Two lines of an epigram, written on the occasion, have brought down alike the evidence of this plan of diffused admission being no recent invention, as well as perpetuated the liberal reward he received for his scientific skill.

"For boring twenty thousand holes,
The Lords gave nothing——d—n their souls!"

* In Fig. 4, Plate I, *a* represents the escape flue with its lower end opening at the ceiling; *c* is the grate or stove enveloping the iron part of the tube.

This apparatus is said not to have been uniformly efficacious, although it is difficult to see wherein the principle of it was not sufficient. A writer suggests that the management of the windows and doors in the hands of careless or idle persons, explains the occasional reversed action which was complained of. The architect attempting to remedy this, removed the artificial heating above, and with it all the ventilation of the hall. Insufficient magnitude of apparatus was the probable explanation of Sir Humphrey's failure. Dr. Desaguliers' wheel had continued in use seventy-four years, proving a considerable degree of efficacy, at least, when the great fire occurred in 1834.

At this epoch, the construction of the new houses of Parliament was decided upon, on a scale of magnificence and cost, quite unequaled in the modern history of architecture. This is still in progress, not having received the finishing touches after a lapse of fourteen years. To render this national palace as complete in convenience, acoustic perfection, and healthful arrangement, as it is in architectural grandeur and artistic decorations, the scientific corps of the United Kingdom were invited to aid the Committee charged with its construction, in the various points of pure air, proper heating, and acoustic fitness. In the careful and minute reports of the evidence given by these men of science, we undoubtedly have all that was valuable, then known in the scientific world. The evidence of Dr. Reid, a lecturer on chemistry of some eminence at Edinburgh,

impressed the Parliamentary Committee so favorably on his examination, that he was instructed to enter upon an extensive course of experimental trials upon the edifice temporarily occupied for the House of Commons, in order that any important results might be transferred to, or incorporated with, the new edifice.

The building which has been the seat of Dr. Reid's labors, is, in fact, the old House of Lords, which was the only portion of the former structure preserved from the flames. His experimental trials have been diligently continued for a number of years, and in a field where no want of means is allowed.

Dr. Reid has been subjected to much ridicule and unkind aspersion, in regard to his ventilating arrangements; and a misunderstanding with Mr. Barry, the architect of the new Houses, has not unlikely prevented the full application of his entire views, in that location to which all his previous attempts have been preliminary. Although unable to perceive aught in the essential points of his arrangements, so novel or peculiar as to place Dr. Reid in the class of discoverers — nothing, perhaps, which was not obviously understood and applied under more restricted circumstances, by Desaguliers, Chabannes, Sutton, Hales, and Davy — yet it cannot be denied that in a full application of the principles of science in his preferred adaptation, he has done all which any man could do. If occasionally, under an embarrassment of riches, he has allowed himself to seek a degree of perfection, passing into over refine-

ment and fastidiousness, it is the pardonable error of aiming too high.

Under the obstacles which have prevented the completion of his great work, according to his views, it is probable we must be compelled to look at the present application, as the highest specimen of his success, — subject as it is, of course, to the difficulties of adapting new arrangements to an edifice long since finished.

A series of openings through the wall into a court yard, admits the fresh external air to the basement of the building. This being situated in a most impure and insalubrious district, it was necessary to connect the street sewers with the chimney, hereafter to be described, in order that their fœtid exhalations should not contaminate the air, at its point of admission. A suspended fibrous veil, 42 feet by 18, hangs before the external openings, the object of which is to separate the mechanical impurities, especially the flakes of soot, of which the London atmosphere is full, 200,000 visible portions having been arrested during a single evening.

The air thus screened, is next passed into a *receiving chamber*, constituting about one third of the basement. A partition divides this its whole length. At the middle of this wall, an opening permits the air to pass through an apparatus in which, by a thousand jets of water crossing each other in every direction, it is washed and moistened. It then passes amongst iron tubes filled with hot water, by which its temperature is raised to any required degree.

It now reaches a long chamber, parallel to the receiving chamber, from various parts of which, apertures are left which allow the air to press up into an *equalizing chamber* above, which extends under the whole hall of assembly. As the current passes up, it impinges against a flat board at each aperture, raised a short distance above, called a *disperser*, which throws the air somewhat horizontally, breaking its upward current.

No less than 300,000 of gimlet holes of a conical shape, with the smaller orifice upward, to prevent clogging by dirt, allow the air to escape into every part of the room above; and to make its diffusion more perfect, a hair-cloth carpet, woven porously for the purpose, gives it an extreme and universal separation.

At one part of the partition, between the first, or receiving chamber, and that from which the air is admitted after passing through the warming apparatus, is another door, making a direct passage for the fresh air without its impinging against the heater. By closing entirely or partially either of these two openings, as the case may require, any degree of change in heat can be obtained with but little delay. This circumstance, valuable in an edifice where the persons present may change from fifty to a thousand at once, or vice versa, is less imperious for common occasions, where no such contingency exists.

The escape of the vitiated air is provided for at the top of the room, where holes are left from one

end to the other into a horizontal channel above, which is received into a descending flue passing to the ground and communicating with the lower extremity of a brick chimney one hundred and ten feet in height. A fire-grate, with a door of supply for fuel, is placed in the centre of this shaft, a portion of the air passing under it to supply the combustion, and the larger remainder at the sides. A valve, or register, suspended in the main foul-air channel at the point above the ceiling where it turns to descend, regulates the rapidity of movement, and consequently, the quantity of air which is drawn through the house. In bringing the air downwards from the ceiling to the foot of the chimney, there is, of course, a loss of power in reversing the natural tendency of warm air to ascend. This, in an original construction, would be readily obviated by having the shaft commence in the attic. It still would be often a question, whether permanence of foundation and convenience of attendance, might not render practically eligible the additional height of chimney needful to counteract the loss by descent.*

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* Fig. 8, Plate I, is a diagram illustrating the general outlines of Dr. Reid's celebrated attempt; *a* represents the place at which the outside air enters and passes in summer against ice suspended in a netting. In winter it is warmed by contact with the pipes represented in section *b*. Thence it follows through the passage *c*, and air chamber *d*. The current then ascends through the opening *e*, where its velocity is checked by striking against the flat board above. From the chamber below the floor, it enters through the gimlet holes and hair cloth, a portion being carried up by separate flues, *f*, to the galleries. Through orifices at *g*, it escapes into the foul-air chamber, *h*. From this, the suction of the chimney with the fire at its base draws down the foul air through the channel, *i*.

The house is heated to the temperature of 62° (F.) before it is opened, and maintained at a temperature between 63° and 70° by regulating the velocity of the draught.*

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* Any one desirous of verifying the remarkable uniformity in temperature maintained in the House of Commons under the peculiar difficulties, will find the tabular records of the thermometer in Dr. Wyman's Treatise, page 226.

Dr. Reid states, that after the completion of the alterations, and when four hundred of the Guards were seated, in order to make some acoustic trials, impossible with empty benches, the experiment was made of the power of the ventilating draught. Large trains of gunpowder mixed with oils and perfumes to increase the fumes and prevent detonation, were fired in the chambers below. The House was filled at once with so dense a smoke that few could see each other; but in a few minutes it was clear, the full power of the ventilation being put on.

Dr. Reid also states, that the greatest supplies of air are required in autumn, when the air is warm and moist, the wind imperceptible, and the barometer low. Fifty thousand cubic feet are scarcely then sufficient, per minute, to sustain comfort in a crowded house.

A very neat and satisfactory adaptation of Dr. Reid's plan of ventilation was described by Dr. E. Rigby, senior physician of the Lying-in Hospital in the York Road, Lambeth, a low section of the British Metropolis. The hospital was seldom free, for any length of time, from puerperal fever, occasionally producing frightful ravages, and requiring the building every now and then to be closed. "After the greatest attention had been paid to cleanliness in every respect, the wards left open night and day for weeks, fumigated, repaired, and frequently renewed, and the most scrupulous attention paid to cleanliness, the fever re-appeared, on some occasions, *immediately* on the hospital being opened."

Believing that the cause of disease existed in the malarious emanations of upwards of 1,500 feet of open ditches, the Commissioners of Sewers were induced to clean and arch over a considerable proportion, at a cost of £500, but without remedying the evil. It was then deemed advisable, in 1842, to adopt Dr. Reid's plan of ventilation; and accordingly, a large sum was expended in the necessary alterations. The annexed diagram, (Fig. 11, Plate II), will explain the general method. Fresh air was introduced under the roof, at *a*, in order to obtain a purer supply *at an elevation*. From a general air chamber, *b*, it descended to separate apartments; a hot water pipe, *c*, gave it a moderate warmth, double glass windows being also introduced. A vitiated air chamber, *d*, regulated by valves, received the air from the rooms. The air in the basement, contaminated by the proximity of drains and impurities below, was prevented from passing into the wards above by the flue *i*; the air from it, and from the chamber in the roof, passing down the shaft *f*, and then into the discharging chimney *g*, to which an upward current was obtained by the fire grate at its base; *i i* are registers commanding the inlet.

It may be well to mention, that the size of this room is 80 feet by 40, and 30 feet in height.

In consequence of jealousies and difficulties among the men of science connected with this immense undertaking, both painful and unnecessary to recapitulate, an entirely different and novel arrangement for the heating and ventilation has been provided, under the direction of Mr. Barry, the architect, and Mr. Bell, who seems to have devised the air and steam arrangements.

The air is received in the usual method into the basement, — is there compelled to pass through tubes which are enveloped in steam, and thus have the temperature of the passing current raised to the desired point. It then passes under flues beneath the floor, after the method used in heating the floors of the ancient Roman baths, which, through their cast iron coverings, part with a portion of their heat, and radiate it directly under foot to the room. It then ascends to a pure-air reservoir,

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After this plan was completed, much opposition to its fair effect was experienced from the female attendants, who closed the egress and ingress apertures. A recurrence of the disease was directly traced to this unpardonable interference. The drainage of the building was also found to be defective. After these difficulties were corrected, in February, 1843, to the time when the testimony was given, June, 1844, not a trace of puerperal fever had existed.

Dr. Rigby states, that before this plan was adopted, the air of the wards was always close, oppressive, and *bedroomy*, owing to a want of proper ventilation. But as soon as Dr. Reid's plan of ventilation was permitted to have a fair trial, the air became not only free from effluvia, "but has now a remarkably clean, clear, refreshing feel, which I can only compare to the sensation produced on entering an empty room which has been recently whitewashed." — *Health of Towns Commission, First Report.* Vol. I, p. 119.

which delivers it downwards from openings in the ceiling, through the carved open-work of the beams.

The foul air escapes into another receptacle above the ceiling, which communicates with a chimney or flue, into which a jet of steam is allowed to escape, producing a most effective draught.

In summer, the air is drawn in through the same orifices, the heating being omitted, and a channel is also provided, governed by doors, which allows as much cool air, for tempering, to enter, as the state of the interior may require. Indeed, it is proposed to fill the space ordinarily occupied by steam, with cold water, from an Artesian well, to reduce the temperature of the air as it passes. That the air is well diffused throughout the apartments is certain, from no draught being perceptible, as well as from the fact, that a hundred large wax candles are burning in the evenings unprotected by any glass, with perfectly steady flames, as well as from direct experiments like the following:

When the air in the supply chamber is fumigated with a perfume, the aromatic odor is perceptible in four or five minutes, by a person sitting in any part of the house, and in fifteen or sixteen minutes, all trace of the perfume has disappeared. The figures will explain the detail of this apparently very successful arrangement.*

* Fig. 21, Plate IV, represents a longitudinal section; A is the House of

Our next specimen of successful ventilation on a large scale, is the late Chamber of Peers of France. The hall of assembly is in the Luxembourg Palace, situated in the centre of a large garden, and

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Lords. D the Victoria Hall or Lobby; E the Peers' Lobby; *a a a* the chambers under the house, &c. divided from it by a perforated iron floor, rendered air-tight from the house by a covering of lead. These chambers are for hot or cold air as may be required; C, the fresh air chambers in the roof; *c* the vitiated air chambers; and this part of the building is shown for clearness in double section; one half to represent the fresh air chamber, the other the foul or vitiated. The actual construction cannot be well shown in the longitudinal section, but is seen in the cross section where the centre division represents the foul-air channel, and the lateral spaces *b b*, are the fresh air receptacles. The dotted line *d d* indicates an iron tube for conveying the foul air from the Victoria Hall to the discharge shaft, wherein is the jet *f*, for moving the air; *e* is the foul air tube from the Peers' lobby to the same shaft; *g* the discharge shaft and chimney to the engine; *h* is the steam boiler; *i* the tubular arrangement by which the air is heated as it passes; *k* the orifice by which it passes into the diffusing chambers *a a; l* the steam pipe to supply the heater; *m* the room where the temperature is regulated; *n* the flues of the south wall of the Victoria Hall, up which the air passes with great velocity to the supply chambers, over the ceiling, two flues being appropriated to the Victoria Hall and four to the House of Lords; *o* continuation of flue for air from basement. Each flue has an area of six feet, thereby allowing the passage, with the ordinary velocity, of upwards of 7,000 cubic feet of air per minute; *p p* passages to supply the heater; *r* doors to shut off hot air.

Fig. 20, Plate IV. is a transverse section of the same; A House of Lords; B B the lower corridors; C C the upper do.; *a a a* the air chambers under the House; *b b* the fresh air chambers over the ceiling; *e* the foul-air chamber; *d* foul-air tube from the Victoria Hall. The flues on each side, from the air chamber *b b*, downwards, convey the air, if required, to the underside of the covings to the galleries, through the ornamental work. The air enters from the river side, the edifice being on the margin of the Thames, through a passage into a small chamber, on the floor of which are five or six inches of water, and passes through a finely perforated zinc screen, over which water is constantly trickling, and is thus freed from impurities. It then passes through the pipes, surrounded by steam, and thence to the chamber beneath the house; nearly 40,000 cubic feet being thus always ready for admission. The air next passes up the flues in the wall of the Victoria Lobby, into the upper reservoir over the ceiling.

The vitiated air is drawn up from the body of the house through the perforated enrichments in the beams of the central division.

The currents from the supply chambers are poured down through multitudinous perforations, in the side divisions, the two currents meeting in the centre of the chamber. The foul-air shaft and the chimney are united above.

under favorable circumstances for a pure circumambient atmosphere. It is a semi-circular apartment of about sixty-five feet diameter, with galleries for the spectators on the sides. The air for warming and ventilation is brought from the open garden in an underground shaft of masonry, about ten feet square. At about the point where this airduct enters the cellar, two fan wheels are arranged, each two metres, (between six and seven feet,) in diameter, and one and a half metre, (about five feet,) in length, and each with six floats or leaves. These are propelled by the labor of two men at a crank, banded to each wheel, and geared, to provide a suitable speed for such a motive power. These draw in the air from the outside, and at the same time drive it forward, and amongst the hot water heating pipes. It pursues its course thence by various upright flues to the apartment where it is to be used, and which it enters through a vast number of small orifices, dispersed in the risers of steps, and other convenient points, so as to produce a proper extent of diffusion. The vitiated air escapes at a large circular opening in the centre of the ceiling, directly under which hangs an immense chandelier, the heat from the numerous gas burners of which, occasions a powerful rarefaction, and consequent upward ascent of the air. The galleries are connected with the main trunk, by collateral flues entering it.

It was determined by various experiments, conducted with that system, science, and deliberation, for which the French philosophers are so distin-

guished, that this apparatus in its usual full action, withdrew each hour 425,700 cubic feet of air.

The summer ventilation was effected by adding the action of another pair of centrifugal fan-wheels, of the same dimensions, and propelled in the same manner, to supply the upward force of the heating apparatus, the use of which being, of course, then suspended. Moved at their ordinary speed, it was found that seven cubic feet of fresh air were supplied each minute, to each person.

The sufficiency of these arrangements, designed by M. Talabot in 1840, were tested and approved by a government commission, consisting of M. M. Thenard, Gay-Lussac, Poullet, and Péclet, some of whom have a world-wide reputation in science.

Let us pass to another class of institutions — from palaces to prisons. The condition of these was most early and prominently connected with the history of ventilation, as well as of epidemic disease. The writings of Howard, the history of the Black Assizes at Oxford, and other sad memorials of the fatal ills resulting from prison-air, attest how fully the necessity of artificial changes of atmosphere was required, long before science had lent its aid. And in these very seats once of the most pestilential miasmata, we now find the most complete and luxurious examples of the application of our art.

The Model Prison, as it is termed, at the suburb of Pentonville, near London, was in every particular designed by the most competent persons, with the most unrestricted provision of means, to fulfill the

highest attainable perfection in all its material arrangements, especially in its heating and ventilating. Although some respectable observers have supposed that they had detected deficiencies in the operation of its apparatus, yet it is certain from the Parliamentary Reports containing the exact tables of Dr. Rees, the physician, and others, — presumptively incapable of bending, much less of falsifying records of numerical facts, — that the quantity, temperature, and hygrometric condition of the air, furnished to each convict, are measured with almost as much certainty and precision, as his food, drink, or light. The form of prison discipline there adopted, would be considered with us a mild and modified form of the Philadelphia or separate system. Each prisoner is detained constantly in his cell, except during a comparatively liberal allowance of time devoted to religious exercises, educational improvement, and out-of-door exercises. Each cell is thirteen feet long, seven feet wide, and nine feet high, to the key-stone of the arched ceiling above, and consequently contains about 820 cubic feet of space. It is, however, scarcely worth while to adduce a point so immaterial in any true system of ventilation, as the size of an apartment. The windows are stationary, and each cell is fitted up with water-closet, washing apparatus, gas burner, besides bed, table, and seat, together with the loom or other implement of the mechanical art, pursued by the inmate.*

* Fig. 10, Plate II, is a diagram reduced from one of the elaborate and exact

An under-ground flue, commencing at a low tower to protect the inlet from animals or other accidental sources of impurity, brings the pure fresh air into contact with the hot-water circulating apparatus in the basement of the building. This apparatus consists of plates and tubes of iron, filled with hot water, which dispenses its heat, by conduction and radiation to the air, as it passes by to enter a flue or channel running from the centre to the ends of each corridor, just in front of the ranges of cells. From this horizontal channel, upright flues are carried into each of the two stories of cells, and are made to discharge themselves near the ceiling, and are controlled by registers, to regulate the admission of warm air.

The foul-air or escape flues open in a grated orifice, about two feet long by six inches wide, near the floor, and thence pass up in flues in the wall, into the attic, where they enter a common horizontal channel, the end of which terminates in the large chimney shaft, rising twenty or thirty feet above the ridge of the roof.

The smoke flue of the fire which heats the water for warming the air, opens directly into the foul-air chimney, and, by the rarefaction produced, consti-

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drawings to a scale, published in one of the Reports to Parliament — to which reference is made, for any desiring more precise information of the architectural detail. The cold-air flues deliver the fresh air under the hot water apparatus at C. It passes up the flues EE, to the top of the cells GG. The foul air leaves the cell floors at FFFF, ascends to the attic channel H, where the smoke flue is turned in, on one side. For summer service, a grate and fire at I, aids the ascent into the flues KK, which become one by the partition or withe at L, having been omitted.

tutes, in the winter season, the motive or exhaustive power, — the warmed air also aiding to some degree the egress of the vitiated air, as it enters the cells, by its *vis a tergo.*

In summer, when it is desired that the air should enter through the same channels, but without heat, a fire is made in a grate inserted in the chimney, and accessible from the attic, through and by the sides of which the foul air ascends and escapes. The peculiar advantage of having the warm air admitted at the ceiling, is, that the change of direction diffuses it through every part of the cell, breaking up the draught; and it is also less likely to be interfered with, polluted, or blocked up, than if admitted at the floor. The effluvium from tobacco or other impure ejections, instead of combining with the entering current, to be imbibed in respiration, is drawn out forthwith — a circumstance of unusual importance in all American attempts at ventilation, where the personal habits of the community, in some respects, are so exceptionable. The only objection to this reversed movement of the current, is the loss of ascensive force, easily supplied by a little addition to the fire.

The whole arrangements of the Pentonville prison, relating to ventilation, contain so complete an embodiment of one of the most common of the modern systems, as to be worth a closer investigation than the discursive character of an address will permit. A reference to the accompanying plan, will enable its action and its efficiency to be fully comprehended.

In the continued advances made in a country of so much capital and science as Great Britain, we find the same general system introduced, in later constructions, with improvements in those particulars where experience had shown defects.

In the immense penitentiary, established at Wakefield, in the West Riding of Yorkshire, the hot water pipes pass along a channel, or large flue, which runs from the central boiler to each end of this corridor. Each section or joint of this iron pipe is increased in diameter in order to compensate in quantity of warming fluid, and extent of radiating surface, for the diminished heat lost in passing from the boiler. In this institution, the foul-air flue, instead of opening at the floor and then passing upward, descends from the lower part of the cell, and enters a horizontal drain, the common receptacle of all the foul air flues, which delivers its contents into the upright chimney shaft, partly entering through, and partly around the fire-grate, as usual.

Few classes of inhabited buildings demand so effective, certain, and controlable means of supplying pure, and removing vitiated air, as hospitals for medical and surgical diseases, and asylums for the insane. In these, pure air becomes not merely hygienic, but sanatory — not only a preservative, but a curative appliance. As respects the first-named institutions, their history in all countries demonstrates not only how important ventilation is as regards those forms of epidemic and contagious diseases, directly resulting from impure air, as typhus, erysipelas, hospital

gangrene, and the like, but as respects those general results of aggregate experience for years, not less certain, although less palpable. The statistical results of simple amputations, in particular hospitals of Paris, and in the whole, are well known to those interested in surgery, and most strikingly illustrate the connection referred to. In the latter class, those for the insane, the peculiar depressive, torpifying influences upon the mind and feelings — the intellectual and sensitive faculties, are now universally acknowledged, and are as susceptible of proof, as any of the purely physical disorders, dependent on vitiated air. I have frequently thought and observed, in passing from one to another of the lunatic receptacles of the old world, that a glance upon the countenances of a group of the inmates, would at once tell the fact, whether they habitually dwelt in a habitation, the purification of which was abandoned to the chance changes from doors and windows, and the almost equally unreliable draughts of upright flues, in which the currents of air were spontaneously determined only by the accidental preponderances of internal heat and external currents; or whether they passed their days and nights in that pure, elastic, healthful medium of equalized temperature, qualified hygrometric condition and copious supply, which some of the modern and improved exhaustive arrangements so fully command.

The eminent philanthropist, Dr. Southwood Smith, in his testimony before the Parliamentary Commission, is the first writer who appears to have recog-

nized fully the connection between the intellectual and moral faculties, and the habitual imbibition of vitiated air. "The poison," he observes, "generated in these neglected districts, and to which these persons are habitually exposed, is a sedative poison, among the most distinctive characters of which are the depressing effects produced by it, both on mind and body. This is one of the main causes, not only of the mental apathy, of which I have already spoken, but also of that physical listlessness which makes them incapable of any great exertion. I am satisfied that this feeling of depression, is one of the chief inducements to the use of stimulants."

Let us select an example of improved insane hospital ventilation, which has undergone the test of a dozen or fifteen years' actual and successful experience, in the asylum of the county of Kent, at Maidstone, in the southeast part of England. This was arranged for a complete exhaustive ventilation from its commencement, under the direction of Mr. John Sylvester, who has long maintained an eminent place in this department of applied science, and the basis of whose arrangement is that originally suggested by Mr. Strutt, of Derby. I prefer giving the substance of his own account of what it is, with suggestions as to certain alterations which he would subsequently have recommended, as inferred from his testimony before the Parliamentary Commission so often referred to, in preference to using my own notes of a visit to, and examination of, the institution itself. I need only say as regards the example

itself, as I found it, that nothing more satisfactory could be conceived. The distinguishing peculiarity is the supply of the whole edifice with an immense volume of air, warmed scarcely above the temperature at which the interior was designed to be maintained. This system is predicated on the principle, that in certain circumstances the unpleasant exhalations from the diseased human body require a change of air, far greater than the quantity indicated for the vitiation produced by the respiration processes. The pure air is received by means of a large revolving cap or cowl, kept with its open side to the wind by a vane, into a tower of moderate elevation, a few hundred feet from the buildings, to prevent any obstruction of wind, or defilement. An underground channel of masonry, two hundred yards long, and six feet square, terminates at the usual hot water apparatus, with the exterior of which the passing current is brought in contact, and thus ascends in immense flues, which open near the ceiling of the galleries. These channels are all so large as to allow the velocity of the air to be exceedingly small, moving through the underground channel only at the rate of four feet per second. The air, at its point of delivery, by its amount, its gentle current, and its moderate temperature, reminds one of the gentle, elastic breeze of the tropics; and there is in its large volume and slow movement, little necessity of any arrangements for divided admission, or other diffusive means, to enable a general and uniform spreading of it to be attained. An exhaustive apparatus

of the simplest kind and least force is sufficient to deflect and scatter a current moving at this slow rate. Mr. Sylvester thinks that it is desirable that the rate at which the air should flow into the interior, should not exceed half a foot per second, or about a third of a mile an hour.

Mr. Sylvester's plan provides ranges of pipes, filled with steam, in the attic, to raise the temperature, and by rarefaction produce the upward current. The summer ventilation is through the same channels, omitting the warming as the air enters. A vacuum cap, turning its mouth to leeward, permits the vitiated current to escape, and when the air externally is in motion, is of some auxiliary service in this way.

Mr. Sylvester, in explaining the plan he would adopt for ventilating the House of Commons, estimates the entire interior contents at 200,000 cubic feet; and here he purposed admitting the air over the whole area of floor, as far as practicable. The combined area of the apertures to this end he calculated at 665 feet. The current of air was to flow in at the rate of half a foot per second, at which velocity it would change the contained air six times within each hour. He would admit the warmed air at a temperature within 5° of that at which it was decided to maintain the house.

The diagram and explanation will give a clear view of his ideas of ventilation, in the experience of which, in the largest and most complete examples in Great Britain, he seems to have had far

more general opportunities than any other individual.*

In another example of a lunatic hospital, the most modern and complete of the French institutions, the Maison Royale, at Charenton, the exhaustive power to withdraw the vitiated air is formed by running the small pipes filled with heated water longitudinally through the foul-air flues; the rarefaction thus produced liberates the foul air, and draws in the pure supplies below.

I will adduce from the elaborate and scientific work of M. Péclet, a still further illustration of a plan of ventilation, which has stood the test of experience, in a hospital for common diseases, referring to the drawing for the exact details.†

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* Fig. 9, Pl. II. is reduced from the plan offered by Mr. Sylvester to the Parliamentary House Commission; *m*, is the body of the house; *a*, is the tower, which admits the cold air and allows it to pass through the channel *h*, impinge against the hot water or steam pipes at *c*, and then is admitted through the floor *d*, as the arrows indicate; *i*, *i*, are the escape holes in the ceiling; *n*, the steam pipes which serve as the motive power; *o*, is the turn-cap, moved by the vane so as to present its mouth to the leeward; *x*, is a flue which would allow the warm air, by means of a register, to pass directly into the attic, aiding the upward ascent, and acting as a waste when too great heat arose from the apparatus; the aperture, also marked *x*, near the floor, enables the foul air to be drawn off at bottom, when the upward orifices are closed by their registers.

† Figs. 15 and 17, Pl. III. represent the middle section of a hospital of three stories. In the cellar is the air-chamber, containing the hot water apparatus, and channels communicating with the external air. A, is the boiler; E, a double spiral coil of iron pipe, to give ascent and some warmth to the air of ventilation, which then ascends in the flue F, which distributes it on each story. It passes along the corner of the walls, at G G, H H. The foul air escapes into the attic, from which it escapes by the chimney I, aided by a grate for summer use. The hot water is carried into each story and radiated from the hot water stoves, D, D, D, &c. Fig. 17, is a ground plan of a part of one of the stories, showing sections of the ventilating flues H, H, H, and the horizontal branches *g*, *g*, *g*, opening under the beds.

In the middle of the cellar is a large air chamber, receiving its fresh supplies from the outside. A boiler of water having a concave bottom to receive the full force of the fire, is placed within the air cell, from which radiate the tubes designed to warm the house. One of these tubes proceeds from the bottom of this boiler, passes to the lower end of a fresh-air flue, which leads from the air chamber communicating with the exterior, and is then twisted into a double spiral nearly filling the width of the flue. A certain degree of ascensive force is thus given to the air of ventilation. This air channel sends off branches as it reaches the different stories, in wooden boxes which deliver the fresh supplies at various openings. A horizontal branch passes out under each bed, where it delivers its pure air, slightly raised in temperature, through three free openings, a valuable point of the operation of which is understood to be, that a sheet or curtain of pure air, rising around the patient on every side, protects him against the approach of odors or exhalations from those in adjacent beds, as it does them from his.

The vitiated air is conducted through a set of escape-flues, which terminate in the attic. A chimney proceeds from the attic upwards, a fire-grate at the inferior orifice of which gives activity to its draught. The interior is heated, in addition to the small amount of heat contained in the air warmed for ventilating purposes, by one of the varieties of the mild

hot water apparatus *; the tubes from the boiler in the cellar, passing to what are termed hot-water stoves, which are merely ornamental iron reservoirs of hot water, having a pipe for its admission and return, and the large radiating surface of which raises the interior atmosphere to the requisite temperature. The peculiarity of this arrangement is, that the heating and ventilation are combined in a certain way calculated to save any waste which would occur from heating more of the external air than is necessary for the due restoration of the atmosphere.

An example of the every-day application of some of the true principles of heating and ventilation in a cheap and simple form, will be found in a common Parisian school-house. The specific example is taken, with the annexed sketch,† from the work of Péclet, although the general principle has long been in common use, under very many modifications. The apartment is of a rectangular form, and about of the dimensions of one of our larger forms of grammar school-houses. The teacher's desk is placed within a few feet of one end, and in the middle. On each side of this, and midway between the

* Those forms of hot water apparatus, in which the fluid is raised to a temperature not exceeding 212° F. are designated under the term *mild*, in contradistinction to Perkins's intensely heated water tubes.

† Fig. 13, Pl. III, is a diagram of a room of the school-house, shortened in length for convenience. B, B, are the seats; C, the stove covered by its case; D, is the funnel entering the chimney, E; *i*, is the damper in the cold-air flue; *f*, is a grate inserted in the chimney. Fig. 14, is an end view to show the mode in which the foul-air flues enter the chimney; *b*, is the door to the ventilating grate; F, F, revolving registers; E, the chimney.

sides of the house, are placed two coal stoves, very similar to the common cylindrical anthracite stoves, in so common use among us. This is covered over with a case of iron, copper, or other metal, leaving a space of three to six inches between. The case extends to the level of the floor, where it rests upon a groove in a cast iron plate, which is set over a flue extending horizontally under the floor to the external air. Various holes are left in this plate, so as to allow the fresh air to pass up in the interspace between the stove and the exterior case. It is warmed by this contact, and escapes freely either by large openings, or small perforations around a few inches of the top of the case. The top is usually flat; and the impulse of the air, striking against it as it rises, naturally diffuses and spreads it much better than if the apertures of exit were more direct in the top itself; the lower surface of this cover has been made in the form of a blunt cone, or segment of a sphere, to produce this effect more freely. A valve or damper in the cold-air flue, commanded by a handle, permits the amount of air admitted to be controlled.

The funnel is carried in the usual way, perpendicularly, high enough to prevent any undesired radiation upon the heads of those seated beneath, and then horizontally to the middle of the opposite end of the school-room. Here it enters a smoke chimney which commences at the ground level. At three or four feet from the floor are openings, commanded by revolving registers or other valvular

arrangements, which admit the foul air into the chimney by the suction produced by the rarefaction resulting from the stove pipe which enters above. At the same level, or a little above, a fire grate is inserted in the chimney, with a door for feeding. This of course is designed for the summer ventilation only, when the heating fire is omitted; and the pure air supplies are drawn from the outside through the winter channels, with perhaps additional and more direct orifices of admission, but without opening the windows.

I am aware that this form of air stove or furnace has been pretty widely used in this neighborhood for a good many years; but the long previous experience in France is corroborative of its excellence. It has been a common mode to place anthracite stoves in the basement vestries of churches, with an air flue running from between the coal vessel and the external case, often of tinned iron, kept bright to prevent radiation at a point where it is undesirable. The hot-air flue is carried directly into the church or hall above. An opening is also left in the external case in the vestry or basement below; and the dampers commanding these respective places of exit of warmed air are connected by a wire, so that when one is opened, the other is necessarily closed. A damper in the external air-duct should never be omitted, as otherwise the varying direction and strength of the winds will produce an irregularity in the supply. If the cold-air duct can also be extended out to the open air on both sides,

a great improvement in its regulation will result. The connection of the dampers admitting air into the respective rooms where it is to be used, is quite indispensable to obviate the danger from careless or ignorant persons closing both at once, an accident which terminates in a destructive accumulation of heat, pernicious to the purity of the atmosphere, and melting and warping the tin coverings, and even the fire surfaces.

The plan of heating, and consequent partial provision for ventilation, recently recommended and introduced into some of the Boston school-houses, is, essentially, that described above. A stove is used in its position, construction, and receipt of fresh air, precisely similar to those long employed in France and elsewhere, except that the warmed air, instead of being allowed to escape through large openings, or small perforations around the top, passes directly out at the upper point of the interspace between the case and the stove; while an obtuse, conical top with its hollow downward is suspended, or slips on a rod or on the funnel of the stove, as if designed to act as a register, which has received the name of a *distributor*. If this is allowed to be closed down to a certain point only, wide enough to give full egress to the warm air, it does not differ much from the common French cover, in which the oval openings are large, and separated by columns or wires of metal sufficient to give firmness to the top. If it is allowed to slip down, so as to act as a valve, and interfere with or prevent the escape of heated

air, the apparatus is brought back at once to a species of old box stove with double walls. The attempt to regulate the quantity of heat admitted to a room in any form of calorifer or hot-air furnace, should be made any where else rather than at its point of escape. The heat is only accumulated by such attempts to be expended upon the stove itself, and then to *roast* the air. Indeed, with a command over the admission of the air of combustion, over the register of the ingress flue, and for extraordinary emergencies, with a waste opening to the outside from the air chamber itself, no necessity need exist for checking the heated air at its outlet.

The Boston school-houses appear to have their exhaustive power furnished in a much less reliable method than in our French specimen, that is, by a chimney cap. The attempt to obtain an upward current, by the action of the wind upon any form of cap, is for obvious reasons perfectly inadmissible in any true ventilation. That employed in the instance adduced, was invented by St. Martin, in 1788; and, when made at a proper angle — which is found by Dr. Wyman's investigation, to differ some degrees from that most frequently used by our manufacturers — is as effective, perhaps, as any apparatus of this kind when the wind blows.*

The absence of any apparatus for fire at the foot, or any other point of the foul air or smoke chimneys, would seem to imply that the summer ventila-

* See Report to American Academy of Arts and Sciences, on Ventilators and Chimney Tops, p. 14.

tion is to be principally dependent on the opening of windows. This, it is hardly necessary to say, must be considered as a great defect in any complete modern ventilation for school-houses in large and noisy cities and populous towns.

A form of this, which is in fact a kind of air furnace in the room itself, much used in some parts of Europe, is selected from among a great variety given by Péclet, and a copy of it annexed will explain itself at a glance.* The cylinder stove is covered with a case of metal, crockery, or even stone, more or less ornamental, receiving its air from the outside, warming it as it passes the interspace, and delivering it around the upper few inches of the top. The funnel is carried directly through the fire-board or masonry filling the original fire-place. Here also is inserted a revolving register, or other movable valve. The heat of the smoke produces a lively upward current. This sucks off the lower stratum of air of the room, draws down the warm portions, and thus equalizes the temperature throughout, while it is renovating the whole by degrees.

Three registers, one in the cold-air flue, one in the exit or foul-air flue, and one in the smoke-flue to command the rapidity of combustion, enable the management of it to be controlled with the smallest amount of intelligence and observation.

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* Fig. 16, Plate III. In these two examples, the air stove stands before the closed fire place; A admits cold air from without, into the interspace; B is the smoke-flue; C the foul-air duct.

After all, however, these are merely forms of hot-air furnaces placed in the apartments, instead of the basement or cellar beneath; and it is questionable whether the comparison of conveniences and disadvantages will often justify this location. The fact that in all combustion of fuel, especially of the carbonaceous varieties, there will be some escape of ashes, or of gases, into the room where it is used; the inconvenience of feeding the grate in the room itself; the care of preserving an exterior of metal in a clean condition; the greater inconvenience of establishing an evaporation of water into the air heated, and some other objections, may sometimes be overbalanced by convenience of attendance. Usually, however, in public buildings where the extent of operations will justify the attention of some person to the business of heating and ventilating, the true point of location for the hot-air apparatus is in the cellar or basement.

The character of any variety of the hot-air furnace is measured, in my judgment, by the simplicity of its construction, its non-liability to be brought to an undue degree of heat in any part, and its ready receipt and emission of air. That made and sold by Mr. Gardner Chilson, of Boston, with an air chamber of brick and an interspace of two or three feet in width, appears to me to combine all the essentials attainable of this mode of heating air more fully than any other which has fallen under my observation. In proportion as they approach the old Wakefield furnace, — in which the

sides of the air chamber are removed from the *cockle* or fire-vessel by an interspace of a few inches only, and the passing air is held in contact with the overheated surface as long as practicable by various turns of direction at right angles or those forms of the French calorifer, in which the cast iron tubes are heated to a red heat, while the air to be respired is passing through them, — so far do all the various hot-air furnaces deteriorate in healthfulness and comfort.

A single other illustration of successfully arranged ventilation on a scale and after an experience sufficient to give it a character, will close this part of our subject, and enable us to pass to the generalization deducible from the mass of individual instances, each one of which is of course merely a type of more or less numbers. The National Bank of England and also of Ireland, have been ventilated under the direction of the bank engineer Mr. Oldham, by the revival of a method, — the employment of bellows, or the blowing cylinder, introduced more than a century since (1741), by Dr. Hales, into many of the prisons, hospitals, and other buildings of the British metropolis, and into nearly all the ships of the Royal Navy, and in many instances, when under adequate supervision, with the greatest success. At that period when steam power was unheard of, instead of being as it has almost become in our days an appliance of domestic use, the apparatus was dependent on human labor,

which must have rendered its employment inconvenient and uncertain.

Mr. Oldham availed himself of the steam engine in use for printing and other processes of the establishment, to give motion to a large blowing cylinder of the double-acting kind, drawing its supplies from the outside, and forcing the air amongst the steam heating tubes, until it enters by many orifices the large room in which the many officers and persons having business are congregated. The temperature is of course easily regulated by the extent of radiating surfaces employed and the activity of the air-propelling movement.

Having now recapitulated in a brief manner, but still, it is hoped, with all the characteristic and distinguishing features, the principal examples on a large scale of modern ventilation, it remains for us to attempt to generalize the various points and peculiarities, to select the essential from the accidental, and deduce principles of universal application from instances in which they may be more or less distinctly combined.

The first peculiarity which strikes us, is of a negative character — the omission of all reliance on, or provision for the admission of the pure element, or the discharge of it when vitiated, through direct lateral openings, doors, or windows, — methods so primitive and so universal, that at first glance we almost deem them the natural modes. In fact, these ready substitutes have been proved by all experience to be wholly

unequal to the duty; and also so incompatible with the systems involving other indispensable points, as to render their entire omission a first principle. Every modern system, as shown in our illustrations, recognizes the closure of all orifices not connected with, and forming part of the ventilating system, as a matter of course; the windows in fact, generally being made double, either by duplicating the sash, or what is better, having a second range of lights set in the same fixed sash, with a confined stratum of air between half an inch thick. The doors also are duplicated at the extremities of a short passage or entry, so that the one in front is not opened until that in rear has thrown itself to. In fact, the cross-draughts, supplies from sources and emissions of air at points not determined by the motive power, would be utterly inconsistent with any uniformly arranged plan. As Dr. Reid well remarks, in any scientific plan, the apartment to be ventilated is to be deemed and treated as a piece of philosophical apparatus, the results of the operations of which are to be interfered with by no fortuitous influences.

The second point of agreement in our examples is also of the negative or omissive character. This is the abandonment of all attempts to rely upon the slight differences of temperature and the resulting ascensive power, derived from the presence of numbers of occupants, or from the ordinary artificial warming. Though under certain favorable circumstances of aerial currents, external and internal states of the thermometer or other contingencies, flues for

permitting vitiated air to escape and its place to be supplied by fresh quantities, may operate with some energy, yet experience shows that it is a system too capricious, too wholly devoid of that certainty and controllability, radically essential to a perfect ventilation, to be thought of at this day. This is the mode which has obtained so generally in our American prisons, hospitals, and public assembly rooms, and from its unfortunate universality its consideration deserves more detail than the present limits permit. In the Appendix, a practical view of the circumstances affecting the delivery of air through various forms and conditions of flues will be given.*

The third circumstance of uniformity in our successful examples adduced, as well as in a wider spread series of cases, (were it of moment to investigate them,) is also one of absence: viz., the omission of dependence upon all kinds of apparatus or contrivances operated upon by the passing current of external wind. This, of course, comprehends all kinds of turncaps, cowls, louvres, and the like. In some instances, the *plenum* and *vacuum* cowls, as they are respectively termed when their open mouths are turned to or from the wind, giving them a filling or exhausting action, are advantageously employed as a collateral or auxiliary measure, saving a certain amount of motive power when in action, but never trusted to as the effective and constant power.

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* Appendix A.

With respect to all the hundred varieties of contrivances of the turn-cap or cowl order, most of which have been invented and reinvented every few years, their whole consideration may be briefly despatched in simply observing that their utility is wholly dependent on a movement which frequently, at uncertain times and sometimes for long intervals, ceases to exist. Consequently the ventilation of buildings depending on the winds, must be just as uncertain as the wind itself, and the occupants of a crowded habitation might as reasonably trust to the prevalence of calms and breezes in a certain sequence for their food and drink, as for their air.

During brisk and active winds, any varieties of them will produce a considerable fluctuating, upward draught. At such times, however, the natural ingress and escape of fresh air unassisted, is the most ready, and of course the necessity of artificial aids the least urgent. In the stagnant, heavy atmosphere, prevailing not unfrequently week after week at certain seasons of our climate, the necessity of certainty of change becomes the most imperious. The effect, at these important times, of any or all of these multiform contrivances is only that of impeding whatever disposition the internal air has to escape arising from augmented temperature, by more or less obstruction at the orifice of the tube, amounting in the least unfavorable specimens of the revolving kind, to one turn at right angles and the friction of more or less uneven surfaces.

The experiment of two distinguished practical mechanics in New York, Messrs. Ewbank and Mott,

demonstrated that there is a considerable difference in the exhaustion of these variously shaped contrivances; that is, when they do act at all. The exact, certain, elaborate experiments on certain varieties of these things, made by a committee of the American Academy of Arts and Sciences before referred to, the detail of which was directed by Dr. Wyman, forever settle all controversy as to the respective merits of the different specimens tested, as well as the want of originality in any modern modifications.

In reverting to the points of positive accord in our examples, we find that they all present a common feature in the following essentials.

I. The obtaining the fresh air from pure external sources, by distinct, appropriate, ample avenues. It is never taken from the cellar or basement of the building, nor from the accidental crevices, or passages provided for other uses. Most frequently a channel of masonry is constructed under ground, and carried to such a distance from the house as to make sure of a pure admission. A tower, or chest with openings, prevents the orifice being blocked by snow, or the accidental admission of living animals or other impurities. Local sources of impure air, which cannot be better avoided by the selection of a spot for the outer opening, are connected with the exhaustive arrangements. Sewers which may be crossed, are covered with air-tight cement work. In fact, no pains are spared to obtain the air in a perfectly pure condition.

In cities where carbonaceous flakes are common,

a fine wire netting is thrown across the flue to arrest the palpable defilements. Even veils of fine gauze cloth are used by Dr. Reid, and the finest perforated sheets of zinc by Mr. Bell, to stop the impalpable, dust-like particles; and the air is also washed by jets of water, crossing each other in every direction, or by water dribbling over the perforations.

Mr. Sylvester found in his trials, that there was still another advantage in bringing the air through long underground channels. They had the effect to equalize its temperature. In one hundred yards, for instance, it received in winter about 15° of heat, and lost the same amount in summer. In the intense heat of our northern summers, this last advantage, combined with the hygrometric addition of jets of water, would be no small consideration.

In Dr. Reid's plans for the new parliamentary edifice, he proposed taking his fresh air at the top of a tower some two hundred feet from the ground, from the difficulty of finding a pure source at the level, in the impure and crowded district in which it happens to be located. This arrangement of course is attended with the sacrifice of motive power necessary to reverse the admitted column of air.

In various foreign instances, of which one example is presented in Dr. Rigby's evidence,* the air is admitted under the roof, and carried directly downwards to pass through the heating apparatus, from

* Fig. 11, Pl. II, described in note, page 338.

which it is then delivered into the rooms above. The air describes three sides of a square in its course.

In various instances, to prevent the irregular draughts through the ingress channels, the air is received into a chamber of considerable size, which acts as a reservoir, destroying the motion of the air. It is then subject to the equable indraught of the motive power. Our examples refer to the placing of ice suspended in a netting, to reduce the temperature in the heats of summer, or filling the steam or hot water heaters with cold water in circulation for the same end.

II. Raising the air admitted to produce warming and ventilating, only to a very moderate temperature.

The subjects of heating and ventilating are so intimately connected in practice, that they can hardly be treated of separately. In our examples, the summer ventilation is often carried on by an arrangement independent of the heating. In winter, the two processes appear to be rarely entirely disjoined.

It seems to be admitted universally, that the true principle of heating the air is never to have its temperature raised above what results from the contact and radiation of metallic plates or pipes, filled with hot water or steam. A peculiarly unhealthful change appears to be occasioned by raising air, even apparently free from appreciable accidental impurities, to any higher heat than about the boiling point.

Whatever may be the chemical changes in air so heated or the pathological effects of its respiration, the actual annoyance arising from *roasted* or *scorched* air is too notorious to be doubted. Its probable explanation is the decomposition of floating, impalpable particles of vegetable and animal nature — certainly not, as is often suggested, and even provided for by stone or earthen radiating surfaces, any deoxygenation from the combination with the iron, since this is chemically impossible, and equally observable when no oxide is formed.

So impressed was that eminently practical philosopher Mr. Tredgold, with the exceptionable character of any air introduced heated above the temperature of boiling water, that he declined taking into view any of the varieties of apparatus in which such a result is practicable. All kinds of stove heat he regards as wholly inadmissible.

It is probable that some few of the hot air furnaces composed of a very extended dome or *cockle*, air chambers sufficiently large and arranged for so low a temperature as to allow a person to enter and remain, and with perfectly free avenues of admission and egress of air, may not fall within the purview of his unrestricted and generally correct dismissal of this class of apparatus.

Public experience has settled down into the conviction that this moderate elevation of temperature can be best secured by the use of steam, or the mild hot water apparatus. This latter name is, as before intimated, applied in contra-distinction to the system

of hot water pipes invented by our countryman Jacob Perkins, a few years since, in which water was heated in small strong pipes to a temperature of several hundred degrees, and radiated heat proportionably. The facts that the air was vitiated by these, as much as if heated by blazing fuel inside, and that the apparatus was complicated and hazardous, have occasioned so general an abandonment of his method, as to require for it merely a simple recognition of its existence. It certainly ought never to be used where the highest perfection is sought.

The heating apparatus, whether hot air furnace, hot water of either class, or steam, may be employed by being placed below, and the air delivered from the air chamber which encloses the tubes or other radiating cavities into the apartment in which it is to be used; or secondly, by the air supplies being admitted to the air chamber of the apparatus in the room itself; or thirdly, a part of the air may be partially warmed and admitted for ventilating, while the remainder of the needed supply is furnished by some disconnected heating means, as open fires, water stoves, steam pipes, or otherwise; or fourthly, the apartment itself may constitute the air chamber to the furnace, and the air of ventilation be admitted in a natural state from outside, to mingle with that artificially warmed. The objection to all arrangements involving this latter peculiarity is, that cold and warm air do not mix readily; and in this direct plan of admission, cold draughts can hardly be obviated.

The modes of managing the heating by mild hot water and steam, the most salubrious and agreeable of all methods, comprise a most extended variety.

The advantages of steam are the less extent of radiating surface required, the surface being always kept up to 212° F., while hot water cannot be maintained in practice above from 180° to 200°. Steam can also be more rapidly brought into action, the elastic vapor pressing the moment it is generated into the most remote part of the apparatus, while the circulation of hot water is gradual. By increasing the pressure of steam its temperature is increased, so that in very cold and urgent weather, a boiler capable of sustaining the usual pressure may be depended upon to furnish steam of a temperature and consequent power of radiating heat, considerably above the boiling point; for example, under a pressure of one and a half atmospheres, or 22 1-2 pounds to the inch, the temperature of steam is 240° F., under two atmospheres or 30 pounds, the temperature will be about 250°, still short of any scorching liability.

The advantages of warm water are, that its circulation goes on long after it is below the boiling point, which accommodates its action to the moderate demands of certain seasons.

It is again necessary to refer to our Appendix for a recapitulation of many of the practical details connected with these forms of heating and resulting ventilation, as well as for tables indicating the extent of the respective apparatus to produce a given result.

III. We find as the next common characteristic of modern ventilating arrangements, some method of diffusing the air, or spreading and breaking the entering current into divided streams, instead of permitting its ingress at a single point or in few openings, which when it is cold form unwholesome draughts, and when heated are equally uncomfortable and deficient in uniformity of condition, failing to give an equalized, homogeneous atmosphere of the proper character; nor does the column of air mingle with that present in the apartment.

Dr. Reid introduces what he terms a *mixing chamber*, under the apartment into which the air is to be admitted as it enters the reservoir; the current from the heating apparatus impinges against a flat surface placed a short distance above the orifices of admission, which he terms a *deflector*, and which throws it horizontally. This destroys its tendency to enter unequally at different points and aids its admixture with cool air, admitted to temper the medium as required. From this reservoir it is admitted by a vast number of small orifices, as we have seen, and is still further divided by a porous hair-cloth carpet. This method of making a hot-air reservoir under the whole room or by channels in various parts of it, and small openings through the risers of steps, beneath the seats, and similar unoccupied places, is quite general in these edifices, where sudden changes in the numbers of those present demand a rapid adaptation of temperature. The diffusion, as we have also seen, is occasion-

ally effected by reversing the current of air as it enters at the ceiling, by the action of a lively draught from near the floor, and thence proceeds upward into the attic, or descends perpendicularly to a common flue in the cellar.

Several simple experiments demonstrate how little the passing currents can be relied on for an admixture of the fresh air and warmed supplies. The stream of air admitted at an opening in the wall, can be clearly traced by a lighted candle at both its upper and under margins, till it strikes the top of the room and thence to its place of escape. Or we may notice how slightly the motion of persons passing about a room, or dancing with considerable activity, occasions any waving motion of the candles. Still more is this exemplified in the imperfect method in use in our hospitals for the insane, where a current of hot air enters and escapes without removing that lowest test of impurity, recognition by the olfactories.

IV. Another, and by far the most important essential, which we find in our various adduced illustrations of scientific and successful ventilation, consists in the invariable provision for some active, continuous, controllable, motive power, by which a current of air is maintained through the occupied space. This power may be arranged to exhaust the vitiated stratum, and thus have the partial vacuum filled with pure supplies through atmospheric pressure, or its action may be to propel in the fresh air, driving it before that already respired and depraved.

This mechanical provision we have found to con-

sist of various contrivances, acting in both these modes and on different principles.

The motive force is derived from the rarefaction of air by a fire in some portion of a tall shaft or chimney, under a variety of modifications all involving the same principle, the ascent of rarefied air and its consequent tendency to produce a vacuum, and all effecting the same result but adopted as economy, convenience, or caprice may have dictated.* We have seen the fire sometimes at the lower extremity of the shaft for the final escape of foul air, the flues turning their draughts received from all quarters under and around a fire-grate; sometimes the fire is arranged towards the middle so as to be fed from the very apartment ventilated, and more frequently still in the attic. The fire employed as a motive power is at times expressly for this end; at others it is that used for heating and other purposes; or the first of these methods may be relied on in summer, the latter in winter. The foul air may be turned directly into the chimney or smoke shaft, or into a flue contiguous to it, or a succession of foul-air flues communicating with different apartments may surround the chimney flue as a centre.

We find in many of the recent applications, that the foul-air flue is carried up in contact with

* For some illustrations of ventilating shafts, as respects the position of the fire grate, see Fig. 12, Pl. II. which explains itself. B represents the chimney shaft, C the fire, A the main foul-air flue from the inhabited apartments, D the door to feed the fire, E the ash pit. In the right hand diagram, the smoke passes up in an interior funnel or cast-iron pipe, and the air of combustion is admitted from the outside, instead of being taken as in the other examples, from the foul-air drain.

the smoke chimney until a point is reached at which no more collateral flues enter, when the *withe* or partition is left out. The expansion and ascent of the smoke and vapors aid in increasing the rarefaction below.

Occasionally a large mass of chimney flues, built to serve many fireplaces in the same house, has been replaced by a foul-air flue, and a central cast iron smoke flue, with lateral elbows to supply the fireplaces, has been introduced. The ventilating connections are made from each room in the vicinity, from top or bottom as preferred.*

In constructing chimnies for receiving foul air with the fire within them, it is hardly necessary to observe, that a greater power will be obtained by having them of circular area and of a conical shape or gradual taper, as the ascending current as it rises, diminishes in density, and eddies naturally diminishing its exhaustive power are produced. The amount of rarefaction and consequent draught will depend of course upon the size and length of the chimney and the amount of fire which may be in combustion.† These are susceptible of a

* Appendix C.

† The use of chimnies already in operation for other purposes is frequently adapted to valuable ends in ventilating. A few years since, a long building in Glasgow, divided into tenements for five hundred workmen, was from its dirty and ill-ventilated condition, frequently visited by fever in its most fatal types. The superintendent of the mill to which these dwellings were attached, placed a large iron tube along the whole range of these houses, one end of which was closed while the other was built directly into the chimney shaft of the engine. At proper places in each house, tin tubes, an inch and a quarter in diameter, extended horizontally and were made to present an open extremity over the bed of each room. The register, closing the chim-

certain approximate calculation, the elements of which have been often theoretically demonstrated.*

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ney of the engine, was so connected to the fire damper, that on stopping the work, the valve was opened, and of course an active current of air was drawn from each room, to be replaced with presumptively purer supplies.

Since this powerful ventilating arrangement (considering its size of pipes) was provided, — which is described in Ure's Philosophy of Manufactures, p. 394, — these factory houses have been free from fever.

It is stated in the report of the Health of Towns Commission, that the Glasgow Fever Hospital is ventilated by a similar arrangement of pipes of a small calibre opening over each bed. While such arrangements are worth recording, as illustrating a principle, or even an ingenious adaptation where more proportionate aids are impracticable, it is hardly necessary to suggest that so small an egress pipe, and the absence of any provision for a proper renewal of the air withdrawn, are incompatible with the idea of any scientific ventilation.

There are also many instructive examples, arranged by ingenious persons, of connecting the seats of water closets with unemployed flues in the chimney stack producing a lively current downwards and totally nullifying any offensive exhalations.

I have been gratified to observe in a popular and wide-spread agricultural periodical some time since, plans for cheap farm houses, embracing a costless, simple, and efficacious provision for removing the foul air and dampness of cellars. It is well known to every practitioner in farming districts, that the cellar is usually the store house of many of the animal and vegetable products of the farm, and becomes, from their slow decomposition, the source of endemic fever, as well as of unpleasant effluvium. In the diagrams referred to, a single flue is carried up between the smoke flues and opening with these at top, while below it opens into the cellar. The constant heat of culinary operations and other purposes communicated to the air flue produces a current easily controllable by a lid or valve hung on hinges. To prevent the freezing which would result from the cellar being supplied with the external air in certain extremely cold periods, an opening into the kitchen might be necessary. The principal call for an active purification is, however, towards spring, when the danger of frost is least pressing.

* The principle and methods of calculation of the draughts of chimnies heated directly or by contact with smoke flues, in producing a ventilating or exhaustive suction of vitiated air, are plainly shown in Dr. Wyman's Treatise and Mr. Hood's work.

The primary force is the difference in weight of air, occasioned by the heat. Air as well as other gaseous bodies is subject to the law, that each degree of heat added from 32° to 212° F., increases the volume 1-480th.

"If this column of air [in a ventilating chimney] be ten feet high, and have its temperature raised 20°, then it will expand 20-480ths, or 1-24th of its bulk; so that its specific gravity would be diminished, and it would require a column of air ten feet five inches high, to balance a column of the

2. Another mode of obtaining an exhaustive power consists in a rarefaction of the air in the

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external air ten feet high, when the temperature of the latter is 20° lower than that of the former. But as the height of the heated column is limited by the height of the tube or chimney, which we suppose to be only ten feet high, the colder column presses it upwards with a force proportionate to this difference in weight, and with a velocity equal to that acquired by a body falling through a space equal to the difference in height, that two columns of equal *weight* would occupy, which in this case is five inches. Now, the law of gravitation is this: — that the velocity of descent is relatively as the square root of the distance through which the body falls; and as a body falls 16½ feet in a second (or sixteen feet neglecting the fraction), the velocity will be, agreeable to the well known law of gravitation, equal to eight times the square root of the height of descent, in decimals of a foot; or $2\sqrt{g\,h}$, when g is the distance through which a falling body descends in one second of time, namely, 16.09 feet, and h the height of the descent.

In the case we have supposed five inches is the height of the effective descent of the heavy column of air. This fall of five inches is equal to .416 of a foot; therefore, by the rule, $2\sqrt{16.09 \times .416} = 5.174$ feet per second or 310 feet per minute, will be the velocity with which the heated column of air would be forced through the tube or chimney under the circumstances we have supposed. If therefore the tube were one foot square, there would pass out three hundred and ten cubic feet of air per minute." This rule, however, would be subject to the modifications of friction, curvature, chemical changes, &c.

In practice, after all, the height and dimensions of a chimney for producing a ventilating current, must be reached experimentally; for the many qualifications and modifying circumstances would prevent any calculation from being of direct utility.

The ventilating chimney of the houses of parliament with which Dr. Reid's experimental trials have been made, and which was equal to a supply of thirty or forty cubic feet of air per minute to its thousand persons, is one example. This chimney was one hundred and ten feet high, twelve feet diameter at base, and eight at top. In the ventilation of the Butler Hospital for the Insane, calculated for about one hundred and fifty persons, with a downward ventilation in all three stories and to an exceedingly thorough extent, it was expected that the smoke flues of the kitchen, bakery, steam engine for pumping, and in winter that of the boilers for generating the steam for heating — the whole carried up in a flue occupying twenty feet area, to a height of about seventy feet — would have, by contact with flues of about the same area and of the same elevation connected with the vitiated air flues, produced a perfectly certain and adequate effect. At least this was the judgment of some of the most competent English engineers with whom I conversed on the plan.

eduction or foul-air flues, by means of heat from radiating surfaces of pipes or plates within them,

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Precisely this original arrangement is to be carried out in the new Asylum for the Insane at St. John, New Brunswick.

As a general rule in modern styles of architecture, it will rarely be found that a central chimney need be carried higher than good taste would permit, in order to effect a thorough ventilation. For in the event of its proving on any occasion or at any season not equal to its expected duty, a little additional force, in the shape of an anthracite coal fire at the base of the ventilating chimney would meet the emergency.

Where many rooms are to be ventilated, as in a hotel, of various sizes, it would be found best to arrange the main stacks of chimneys so that several flues for ventilating should surround that into which the smoke of the constant and large fires for cooking and similar purposes is received. Then at the base of those connected with apartments which might be called into use under occasional exigencies, as halls, large reception rooms, &c., should be an opening to permit more exhaustive force to be added. Or even the steam of the boilers, now in almost universal use in large establishments, could be directed into a principal foul-air flue, according to Mr. Bell's system. At the McLean Asylum the waste steam of the small engine is turned into the foul-air flue of two of the least ventilated galleries. The noise which was feared as a serious objection proved quite inconsiderable, and the amount of upward current was probably increased tenfold when the engine was in operation.

In another instance at that institution, an underground horizontal flue was run from beneath the seat of a water closet, from which it was impossible to effect a removal of foul air by other methods, to an unused flue in the kitchen chimney stack, a distance of twenty-five or thirty feet. The effect was most decided; even the smoke of the most fœtid substances burnt in the pan of the closet, never ascended above the level of the seat. As a general rule, it is undoubtedly best to make a ventilating chimney as high and as large as is consistent with economy of space, cost, and symmetry of exterior. In school rooms, counting houses, lecture rooms, and the like, double the extent of the smoke flues may be expected to accomplish the ventilation.

It would seem to be proper to make some reference to one objection to the use of exhausting chimneys in ventilation which has attracted sufficient attention to be at least thoroughly refuted, — an attention not so much due to the soundness of the objection, as to the scientific character of the objector. Dr. Ure, the chemical philosopher, in his Dictionary as well as in his parliamentary evidence, and in announcing his views in other places, has asserted the opinion very confidently, that the exhaustive methods in ventilation produce a rarefaction of air most deleterious to health. In his impatience at Dr. Reid's experiments, he observes: "These curious effects clearly illustrate and strongly enforce the propriety of ventilating apartments by means of condensed air, and not by air rarefied by large chimney draughts,

containing steam or hot water. We have found these as long since as Dr. Desaguliers' trials in England in the last century, and we still notice them in some of Mr. Sylvester's latest improvements, and recommended by him in the great Parliament-House undertaking.

The forms of calorifers or hot-air furnaces, in which the tubes admitting the air below and allowing it to escape above at a high temperature are enveloped in the burning coals and attain a red or white heat, would be exceedingly convenient to effect this object, especially where no fear existed of fire being accidentally produced by the dropping of coals below, as might occur when wooden flues entered the ventilating chimney. Here the air furnace or calorifer, placed within the shaft and fed from without, would allow the air to pass through its heating pipes with great velocity. It is, in fact, all the use that such unhealthful and overheating appliances should receive. In one of our figures an early application of this plan is delineated.*

In the costly Maison Royale for Lunatics, at Charenton, we have seen that the hot-water pipes

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as has hitherto been most injudiciously, wastefully, and filthily done in too many cases."

The simple fact that the diminution of atmospheric pressure through any of the exhaustive methods, is stated by Mr. Hood seldom to exceed 1-100th of an inch of the barometer, and generally does not reach 1-200th of an inch, while the ordinary meteorological changes of this instrument, still unfelt upon the animal economy, run through more than two and a half inches, demonstrates the exceedingly "thin air" of Dr. Ure's hypercriticism.

* Fig. 5 and 6, Pl. I. are representations in elevation and cross section, of a calorifer long since employed to produce eduction. *n* is the reservoir for

are carried longitudinally through the escape flues, to induce the escape of foul air, in their way towards the points where they are expanded into suitable radiating surfaces. One of the applications of Perkins's high-heated pipes of water accomplished this result. The direct pipe which connected the radiating coils in different stories was carried through an upright flue, which had openings made to allow the air to be drawn in at suitable points near the floor to the ceiling as preferred. A stop-cock was placed near the point where the horizontal pipe left the perpendicular which cut off the circulation designed for heating, but still left it free in the pipes within the flue. This of course secured a ventilation in the season when it was too warm for artificial heat.

In the New Jersey State Lunatic Hospital, a discharge current is to be promoted by a steam pipe between one and two inches in diameter running the whole length of the foul-air flue perpendicularly. It will probably be found expedient to fit a jet apparatus to the upper end of this pipe and secure an upward draught on this recent application.

The rarefaction in the eduction flues is produced also by chandeliers suspended just below the inferior openings, as in the French Chamber of Peers, and in most modern theatres where a systematic

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feeding ; *k*, the fire grate ; *a a*, the tubes, surrounded by the flames ; *c*, *c*, *c*, *c*, tubes which bring the foul air from various places into the common box, *d*, hrough which it ascends into the chimney, *o*.

ventilation is provided. Single lamps or Argand burners have also been hung within flues to meet particular emergencies, but would be too expensive a method for any extensive employment.*

3. The provision of a chamber, or an expansion of the foul-air flue just over the apartments to be relieved of their vitiated contents, which shall be supplied with a portion of the hot air generated for heating purposes in the basement below, is characterized by Mr. Brande in his Parliamentary testimony in 1835, "as the most generally and conveniently applicable method." Its modus operandi is obvious; the air below rushes up to fill the space above, in which the air is of less density.

4. Centrifugal or fan wheels acting either as exhausters to suck out vitiated or propellers to force in pure air, — which conditions of their action are respectively determined as before indicated by the circumstance of their centre or their periphery being connected with the entering or exit channels,— have been used from an early period and with satisfaction in some of the greatest examples, as is still the case in the French Chamber of Deputies. The formulæ by which the efficiency of these valuable machines may be calculated will be found below.†

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* Fig. 7, Pl. I. represents the chandelier *a*, surrounded by the metallic cone *b*, which is inserted into the shaft *c*, into which the foul air from various points is turned through the boxes *o* and *n*, and into the open air by the cap *u*.

† The method of determining the efficiency of the rotary fan is thus given by Mr. Hood: —

"The mean velocity of the portion of the vanes of the fan by which the

5. The employment of exhausting and propelling pumps and bellows is still maintained very efficiently in certain large establishments, an example of which we have introduced.

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air is discharged, is about $\frac{7}{8}$ of the velocity of the extremities of the leaves; but owing to the inertia of the air, there will be a further loss in the velocity of the issuing current, increasing with the greater velocity of the vanes; so that, under ordinary circumstances, the current will be discharged with a velocity equal to about $\frac{3}{4}$ of the velocity of the extremity of the leaves. This velocity in feet per second, multiplied by the area of the discharge pipe in square feet, will give the number of cubic feet of air discharged per second.

To estimate the force necessary to cause the rotation of the fan, the following method of calculation, founded on the ordinary mode of estimating steam power, will be found sufficiently accurate: —

Suppose the effective velocity of the vanes of the fan to be 70 feet per second, and the sectional area of the eduction tube to be 3 square feet, then $70 \times 3 = 210$ cubic feet will be the quantity of air discharged per second; and this number, multiplied by 60, will give the quantity per minute. As a cubic foot of air weighs 527 grains, there will be about 13 cubic feet of air to a pound; therefore $\frac{210 \times 60}{13} = 969$ lbs. is the weight of air put in motion per minute, with a velocity of 70 feet per second. The height from which a gravitating body must fall, in order to acquire a velocity of 70 feet per second, is $\frac{70^2}{8^2} = 76.5$ feet; which, multiplied by the number of pounds weight moved per minute, will give the power necessary to be expended, in order to discharge this quantity of air at the stated velocity. And this product divided by 33,000 (the number of pounds weight that one horse will raise one foot high per minute), will give the amount of steam power required. Therefore $\frac{76.5 \times 969}{33{,}000} = 2.24$, or nearly $2\frac{1}{4}$ horse power, will be necessary to discharge the given quantity of air at the velocity stated."

Fig. 22, Pl. II., represents an improved form of the fanner, as compared with the construction of Dr. Desaguliers and others. The case and the interior wheel are not concentric: *o*, *o*, is the case; *a*, the axis; and *c*, *c*, *c*, *c*, the vanes; *d* is the channel through which the air is forced in the direction of the arrows; *x* marks the central openings in the ends of the case, for the induction of the air.

In the application of fan wheels for ventilation, it must not be forgotten that the quantity of air, not its velocity and pressure, is the object sought; the reverse of what is required in blowers for facilitating combustion. A speed of 3 to 500 revolutions per minute, is as much as can be maintained without an unpleasant noise; and, in view of all the loss of power in gearing, &c., the diameter of the fan should be calculated for a speed, certainly within that named.

The curvilinear blades of some modern varieties have no superiority sufficient to counterbalance the mechanical disadvantages.

The reciprocating action and friction of packing, as well as the loss of power resulting in most forms from *wire drawing* the air, as it is called, that is, forcing it through a diminished aperture, prevent this from being as economical a method of using power, as the centrifugal wheel. There may, however, be situations in which it may form the most desirable apparatus.*

Dr. Arnott, in his testimony before the Health of Towns Commission, observes that when he visited Glasgow in company with Mr. Chadwick, there was described to them a vast lodging house in connection with a manufactory, in which fever was formerly very prevalent, and which was in consequence ventilated by making an opening from each room into a duct which terminated in an air pump. The supply of pure air, he says, obtained by that method of ventilation, was sufficient to dilute the cause of disease, so that it became powerless.

6. The use of the steam jet, the latest and probably the least troublesome and most certain of the

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* The effective performance of blowing cylinders for this purpose, under a given amount of moving power, is readily calculated.

"Suppose a ventilating pump three feet square and five feet high, and that the piston makes twenty-five double strokes per minute, each four and a half feet long. In this case, 2025 cubic feet of air per minute will be discharged; and if a valve for its discharge be ten inches square, the velocity of its discharge will be equal to 48.6 feet per second. This quantity of air, reduced into weight, will be $\frac{2025}{13} = 155$ lbs. put into motion every minute, at the rate of 48.6 feet per second; and therefore, we shall have $\frac{48.6^2}{8^4} = 36.9$ feet, as the height from which a gravitating body must fall, to obtain the velocity of 48.6 feet per sec., and $\frac{155 \times 36.9}{33{,}000} = .17$, or one-sixth of a horse power, as the necessary force to discharge this quantity of air, at the stated velocity."

It will be recollected, that a horse power in dynamics is 33,000 pounds, raised a foot per minute.

methods of inducing an exhaustive current, has been described in the account of the new Houses of Parliament.

Steam has been before used in locomotive engines, to produce the prodigious draught needful in their rapid combustion of fuel, by the escape pipe entering the chimney.

The only exact statement of its efficiency I have seen, is the calculation of Mr. Faraday, that with the steam at thirty-two pounds pressure to the inch, or about two atmospheres, a point not unusual in what are deemed *low pressure* boilers, air is removed to the amount of two hundred and seventeen times the cubic feet of steam escaping.

The jet is arranged in the simple and economical circular cap, such as constitutes a very common form of gas burner.* No particular length of shaft is required into which the steam is to be liberated, and the foul air is received below.

7. The use of revolving screws of various forms, to exhaust and propel air as they may be turned one way or the other, requires to be mentioned only to put those disposed to invent new things on their guard and lead them to examine what has been hitherto done.†

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* Fig. 24, Pl. II.

† Dr. Reid observes that the Archimedean screw has been extensively used in Belgium and elsewhere, as a substitute for the fanner or centrifugal wheel. Several years since, two gentlemen of nearly the same name, — Mr. Combe of Leeds, and M. Combes of Belgium, — made an improvement in the screw simultaneously, to which Dr. R. is inclined to give the preference over the preceding varieties. Fig. 23, Pl. II. represents one of the varieties of this form. The *double screw* is convoluted spirally around the axis *c*,

V. Our last common essential is in the power of controlling and regulating the operation of the apparatus, producing the ventilating change. It is obvious that the various circumstances of numbers, character, and detention of the occupants, and the state of the external air, must require a command over any apparatus or method, to fit it for proportionate action. An extent of warming and ventilating adapted to a full Parliament of eight hundred or a thousand persons, during an interesting and exciting debate, would be widely unfit for the faithful few who might remain after it was over to plod over the dull details of private bills or financial statistics.

So the amount of air which would be fully adequate to the ordinary wants of a hospital, would be wholly unequal to a pure and salubrious atmosphere in the parts devoted to fever, small pox, gangrene, and the like. The galleries of the convalescent or cleanly patients of a lunatic asylum require an insignificant quantity of fresh air, compared with those occupied with the demented or maniacal, lost to personal propriety. Apartments occupied for a few hours or a single hour, like lecture-rooms, churches, and the like, would permit a much less energetic provision of machinery than if the sessions were protracted, as in courts of justice, schools, and legislative halls, while the

which is turned by any motive power at hand. A shifting of the gearing so as to reverse the direction will change its action from propelling to suction, at will. The arrows show the respective directions of the screw and air currents.

latter have intervals of repose unknown to prisons, hospitals, and other places of detention, where the inmates are present through the day and night.

All these adaptations are to be provided for, and in most of our examples we see the most abundant means of meeting every emergency. The tables of the temperature of the House of Commons and the prisons on the Model Plan, (and this element perhaps expresses the renewal of air in those instances where the only heating is in the air of ventilation,) demonstrate the accuracy to which the adaptation is brought. It is hardly too much to say, that in them the quantity, the hygrometric condition and temperature of the air are susceptible of as much exactness, as the provision of food and drink.

In the recent ventilations of the principal Parisian edifices, a contract providing for all the requisites of a perfect system is entered into, and even the precise sum for the annual support of these arrangements is agreed upon. In Péclet's complete treatise, various specimens of the accuracy to which this part of the detail has arrived are presented. A practical tradesman agrees to furnish without fail, a certain number of cubic feet of pure air, per minute, at a given temperature, at a specified sum.

A maximum supply may be contracted for, while the power of reducing this to a less degree required by the circumstances of the case, is placed within the ready control of a moderate degree of intelligence. It is of course not within the com-

pass of possibility, that there can be any self-regulating means of supplying heat or air, where the demand is continually varying. Hence all systems on any considerable scale, must require a constant supervision, and management on fixed principles, and not as suggested by the capricious and uncertain calls of individuals of peculiar constitutions and habits. Much of the obloquy and ridicule which have fallen upon Dr. Reid and his ventilating trials, has been owing to the impossibility of satisfying men, whose requirements are widely variant or even diametrically opposite. The rubicund four-bottle country squire and the exsanguined and aged ecclesiastic, cannot be measured by the same scale without one or the other suffering. An approximation to the average necessities is all that can be hoped for.

In most of the provisions of motive power, the controlling means are obvious. Valvular contrivances, known as registers or dampers, are equal to the smaller adaptations or temporary emergencies. The amount of fire or steam, or other heating means, when these constitute the moving force, the velocity of the fan-wheel or other apparatus involving the same principle, are all readily adapted to a very low minimum. If in the original arrangement, a plan is carefully calculated for a high maximum, as measured by the number of cubic feet of air thrown in or drawn out, there is little difficulty and usually but little wasted expenditure, in working the apparatus at a much diminished activity.

The various modes of effecting the same results in ventilation, are by no means to be considered as antagonistic or even competitory to each other. An abstract preference cannot be properly yielded to one at the expense of the others, as an inferior machine in the arts yields place to one of an improved design. The selection of a system or of peculiar features of several systems, will depend entirely upon circumstances. The degree of perfection sought in some cases, as in the plans of Parliamentary Halls and certain hospitals, demanding the utmost of hygienic completeness or even luxurious provision within reach, may be allowed to overrule all considerations in the points of cost of construction or of maintaining in due performance.

The occasion as determined by the extent of numbers to be provided for, their character, and their continuance in the same place, is also an important element in deciding the question. A library, a church, a hall of assembly for concerts or lectures of an hour, a school where a small portion of day-time only is spent, a legislative hall of uncertain numbers and length of sessions, manufactories of high temperature, offensive processes and crowded population, hospitals for numbers of the sick or insane, equally pressing at night as at day, all constitute in an increasing ratio instances of the inequality of the extent of provision required.

The presence or absence of an available power of steam or water to give motion to ventilating ma-

chinery, may give a preference to certain arrangements, entirely out of the question under other circumstances.

To illustrate these modifying conditions, by particular instances: Were it determined to ventilate a large already finished hall for lectures, concerts, or other evening occasions of an hour or two duration, the simple rotary fan, propelled by the labor of a man, arranged in the garret or cellar as it might be preferred to inject fresh or exhaust foul air, would involve least expense, least complexity, least disturbance of work already completed, with a sufficiently complete performance of its office.

If, again, we were required to provide perpetual, certain, and copious changes of air for a large hospital for medical or surgical diseases or for the insane, or for a cellular prison, where no power would ordinarily be at hand, little doubt can exist that the lofty chimney shaft, urged by a coal fire or the late adaptation of the steam jet, would be the most reliable as well as the most economical. Here again, circumstances would decide which modification of the many plans having the tall shaft for their motive power should be selected.

Whether the flues for foul air should surround the central smoke flue or enter at its foot under and around its grate, whether the foul air flues should proceed upwards or descend to their horizontal main channel, whether the common fires for culinary and heating purposes should be relied upon,

or a separate fire be provided, and many inferior points would all be decided by the position of each case. For some hospitals, hotels, or prisons, the kitchen fires might prove adequate; for the larger class of hospital edifices, an independent shaft of lofty height would be demanded.

Again, to purify the populous halls of a factory or other building for the purposes of the arts, where from the aggregation of the employed or the nature of the processes, a lively and energetic ventilation would be requisite and where abundant motive power is at hand ready to be used as long as the necessity obtains — that is, by daylight only — the fan wheel or wind cylinder in some of their varieties, might be more expedient.*

Where the steam engine or merely the steam boiler for heating is found, as is the case in most of the immense modern cotton factories of New England, the jet of steam thrown into the eduction channels might be the most useful mode.

A downward ventilation, that is, from or near the floor of the room, requires more power and consequently is at some economical disadvantage, by the reversing of the naturally ascending movement. But in halls where the dust raised by the feet of an excited auditory may better be kept from their lungs, — in insane hospitals, where the inlets if accessible may be polluted, and indeed are con-

* The ventilating fan is said by Mr. Bernan to be much used in the manufacturing districts of England, for drawing off the heat, moisture, and filamentary dust of the rooms.

stantly liable to annoying depravations from the use of tobacco or other filthy practices, these become harmless from the current of air being drawn outwards, not inwards over the offensive matters;—in legislative halls and court houses, where according to the custom of our country an infusion of the same vile weed is scattered over the floor so profusely that as its vapor rises in universal solution, no man with clean interior can hope to escape imbibing an equal share of the offensive fumes, a draught downwards with a pure admission of air from a point overhead, is certainly a great desideratum. Indeed, the plan of a united upward and downward ventilation at the same time, to meet some exigencies in the arts, is recommended in some modern treatises. So refined and nicely equilibriated an adjustment as this would seem to require, could scarcely be maintainable in practical application.

It is thus obvious, that in deciding upon the details of any plan, the general principles of the art must be well understood and applied in view of all the circumstances of the given case.

For a numerous proportion of the exigencies which present themselves in every day life, such as school-houses, poor-houses, lyceums, and other halls, vestries, court-houses and small county prisons, my impressions are in favor of main foul-air flues, passing up in contact with smoke flues in constant use; or in case of hot air furnaces being employed, the foul-air duct should be between both these warming sources, the *withe* or dividing partition

between the smoke and foul-air flues being removed at the attic floor to augment the draught.

For summer use, in case the kitchen or other fires are diminished or discontinued, an opening for a fire with a grate should be made at some convenient point in the foul-air flue. The point for a moderate fire of some slowly burning fuel for this purpose ordinarily the most convenient, is in the cellar where the furnace is, but may be in the attic as figured in the plan of the Pentonville Prison, or even in the apartment itself as delineated in the French school-house.

The main foul-air flue, placed either within or just outside of the apartment, may be pierced for the admission of vitiated air at such part as is deemed most expedient, in accordance with the system of upward or downward ventilation determined upon.

If the supplies of warm or fresh air are from below and admitted at the floor, the foul air would properly be drawn off at the ceiling, either by a single opening as large in area as the tube would permit, or by lateral flues running horizontally across, around, or just above the ceiling, (a box-like cornice for example,) and apertures to equal the flue-area made in these at convenient distances.

If the heating is provided by flues opening high or by radiating pipes or stoves, the foul air may be drawn off at a similar opening at the floor of the room into the foul-air duct.

Or if it is decided to protect the lungs from the

dust and vapors by a downward current, horizontal flues beneath the floor should extend from many parts of the room, with perforations into them at every point protected from closure, arranged as respects size and frequency with a constant regard to the comparative indraught, at different distances from the upward flues.

In a climate where so much wind exists as in ours at certain seasons, I would not wholly discard the use of turn-caps, for aiding in admitting and discharging air. These, of course, are merely auxiliary measures, calculated to save some expense in motive power; as no one acquainted with the demands or completeness of modern ventilating arrangements, would even think of relying exclusively or mainly, upon any contrivance depending on so proverbially inconstant a power as the wind. For, as before intimated, there are occasionally weeks of most imperious demand, when the cowls or caps are actually worse than merely useless.

The cast-iron *plenum* and *vacuum* revolving cowls constructed by Mr. Mott of New York and used in the public schools of that city, and the fixed cap with a conical border, originally constructed in 1788 by St. Martin (the best form of which is that recommended by the American Academy of Arts, in the Report heretofore referred to), appear to me to comprise most that is attainable in that multitudinous class of contrivances, in the cheapest and most durable form.

Our last subject for consideration is the quantity of change of air which is necessary or expedient.

In arranging the ventilation of any given habitation, how many cubic feet of air should be thrown in and taken out, in order to secure the full advantages of health and comfort, dependent on purity of the respiratory medium?

In estimating the quantity of air required for each pair of lungs in a given time, neither chemistry nor physiology, as before intimated, affords us any aid. Were the question — how much air is needful to save from suffocation? the researches of the chemist as to the decomposition of ascertained averages of the amount of air in the lungs, would be sufficiently precise and reliable. But when we consider that the comparatively minute taint or imperfection from the effect of respiration, is capable, under most extended dilutions, of producing an undoubted deterioration upon the hygienic and sanatory qualities of the atmosphere, we shall see how little any chemical alterations bear upon the infinitely more delicate, and as it were, spiritual depreciations. If analytic chemistry is still too coarse in its investigations to be able to detect any difference in the pure mountain breeze, and the stifled contents of the small-pox or fever hospital, — if the mere senses can detect repulsive additions which tests do not recognize or verify, it ought not to be blamed for failing to throw light upon so infinitesimally small dilutions of respiration. We know by the abundant proofs suggested heretofore, amounting almost to

demonstration, how momentous the inappreciable additions are, as respects disease and death. If no scientific acquisitions enable us to find out these important relations, neither do our senses give us warning or defence. A single respiration from the lungs will produce a medium in which a candle will not burn; yet within my own personal observation, Irish laborers have continued at their work at the bottom of a well, hours after a light had been extinguished.

A depraved taste as to the quality of air can be acquired and maintained as well as in regard to food or water, of which so many examples will occur to almost every one. One of the oldest and most honored of our Supreme Judges, who has been seated days and years in court-houses filled with the most polluted and irrespirable atmosphere to all unaccustomed lungs, avers that he recognizes no defects in it, and regards all call for ventilating measures as quite superfluous, on his account!

We are then driven for the solution of the important question of quantity, to the result of experience, a test in a single case being quite too uncertain and intangible, but when reduced to the formulæ derived from the conclusions of many investigations, must form our standard, because it is the highest evidence the case admits.

Commencing with the lowest minimum proposed by the leading authorities, we shall find as we reach the highest maximum a wide range. Dr. Arnott considers two or three cubic feet a minute, as all that need be charged to each person. Mr.

Tredgold fixes his average at four. Mr. Hood, a recent very accurate and practical writer, observes, "that in all public buildings and rooms of dwelling-houses, a quantity of air equal to from three and a half to five cubic feet, for each individual the room contains, must be changed per minute, in order to preserve the wholesomeness and purity of the atmosphere." Mr. Toynbee, F.R.S., an English surgeon, in a lecture recently delivered before the Institution of British Architects, fixes upon ten cubic feet per minute, or, what he proposes as a unit of measurement, double the contents of a man's body, as required to meet the demands of respiration.

Dr. Reid declares that the provision of ten cubic feet to each person, per minute, in the House of Commons, proved to be a minimum which was generally recognized as below the natural wants of the system, and declares it as his determination, to adapt his ventilating power to the work of introducing not less than from twenty to sixty cubic feet per minute. In the French Chamber of Peers, twelve cubic feet are furnished. At the Pentonville Model Prison, the arrangements are fitted to turn in from thirty to forty-five cubic feet.*

With data like these, it would not perhaps be an

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* The velocity of air in currents and in flues is measured, and its quantity in cubic feet determined, in various ways. Anemometers or wind-gauges, indicating the strength of the current by number of revolutions, or raising weights, or contracting a spring, have been constructed. The floating of flocculent particles or dense smoke, enables the speed to be noted by a stop-watch, through a given length of pipe or flue. Paper covered with a paste of starch, receiving a current of the vapor of iodine liberated at the other end of the channel, is struck instantaneously with a deep blue tinge. The interval is measured by any time-keeping instrument.

unsafe estimate to consider the quantity of supply demanded to maintain a due fitness of the air for respiration, at from ten to twenty cubic feet per minute, to each person. Circumstances may considerably influence any general conclusion like this. For example: in large rooms to be occupied only for short periods, like churches, it must not be overlooked that there is at commencement a reservoir of pure air in the space above, which is to be subtracted from the amount to be obtained artificially. Mr. Péclet calculates that each person fills $\frac{33}{100}$ of a metre, or about a foot of area on the floor. To contain a supply of air for a session of one hour, a room must then be fifty-four feet high, and in this ratio.

Again, in some cases of exceedingly uncleanly inmates or offensive diseases, the quantity of change demanded to maintain an atmosphere pure to the olfactories, must be more than the amount for merely respiratory purposes. Generally the contrary will be the case, and it will be found that the adequate supply for the lungs will prove sufficient to maintain a fresh, elastic, and unrecognizable condition.

On bringing to a close this brief consideration of a most important art, I would hope not to transcend the bounds of a respectful deference, in urging upon the members of this association the claims which the various branches of sanatory and hygienic reform and especially that of ventilation have upon their attention and investigation, particularly in their relations to the population of New England, at our day and *in futuro.* Have not these

been emphatically the omitted of the great questions of professional culture, the world over? Pathology, therapeutics, the profoundest secrets of healthy structure and of diseased change, have been pursued with a zeal, perseverance, and success so extraordinary as to mark our age as that of critical exactness and refined observation. The causation of disease, the prevention of the morbid influences in operation prior to either functional or organic response, the recognition and counter action of the subtle causes of commotions set up in the animal economy to expel or to contest with some morbific source of mischief, have necessarily been deficient in that element of numerical and specific exactitude, which commends itself to the accumulator of truths, and may therefore perhaps have been somewhat ungracious to the tastes of our time. These have consequently been rather allowed to fall into the category of loose speculations, and have been regarded as topics of a light and popular literature scarcely of the profession,—as presenting proper features for the magazine or the lyceum, rather than for the strict persevering research, accorded to other topics of medical investigation. Let it be thus no longer — let the physician claim as his own, these matters primarily bearing on life and disease, and save them from the unhallowed hands of merely popular sciolists, by a profundity and precision of knowledge respecting them, which shall overwhelm all merely superficial acquisitions.

The old world is roused to the consideration of

sanatory reform, by the pressing necessities of the case so urgent as to allow no further procrastination. Its governments have been awakened to the dire consequences in disease, deterioration of the species, and frightful mortality, of a neglect for ages of the laws of health and life, and are preparing to expend with an unstinted hand the stores of accumulated treasure, to redeem themselves and their posterity from the consequences of long perpetuated ignorance and error.

Be it ours to guide a new people, by the lights of past experience, and the world's present science, so as to avoid the same errors and omissions, and by consequence, the same disastrous results.

We are so fortunate as to live at an era, and in a country where, despite the forebodings expressed by the impatient and the desponding that the inroads of empiricism of a thousand names are endangering our profession and the society of our time, the character and judgment of the scientific, the wise, the practical physician are of greater weight than at any former period of the world's history. The throwing off the mere trappings and artificial distinctions of society now in progress in the other hemisphere, long since achieved with us, is only one of the resulting manifestations that mind, cultivated reason, and enlightened conscience, are destined to hold their just influence over the civilized world. Measured by such claims to first rank, by devotion to others' welfare, by abnegation of self, by perseverance *inter labores et tedia*, the followers of the

medical art have no reason to dread diminished consideration, as the world proceeds under its new system.

Gentlemen of the Society:

Happy should I regard myself, if I could close my short hour's communion with you, in these words of encouragement, congratulation, and hope. But alas, he that stands in this place, as year succeeds year, must have the melancholy, yet not wholly painful duty, of recalling to the living, the memories, the services, and the merits of the dead. I say that the duty of commemorating those who have passed on before us, is not unmixedly painful; for in the long years of useful labor of some, and in the abundant proofs in the shorter career of so many others more early removed, that

> That life is long, which answers life's great end,

— in the exulting consciousness we feel, that there are still spared so many of the fathers of our calling, who have so long filled the highest places in the public estimation as they have in our hearts, whose influence upon the elevation of the medical profession in Massachusetts, in New England, can be fully appreciated only in after times, — towards each one of whom, as year after year we greet their venerated forms on this floor, the spontaneous ejaculation bursts from our inmost soul, *sero in coelum redeas !*— we cannot feel that we grieve for the fallen of our ranks, as those without many circumstances of mitigation and of mercy.

NECROLOGY OF THE PAST YEAR.

Died.	Admitted.		Age.
1847.			
June,	1845	Albert G. Upham,* Boston,	32
Aug. 5,	1840	John S. Champney, Abington,	51
Sept. 6,	1814	Joseph Kittredge, Andover,	62
Sept. 21,	1819	Anthony Collamore, Pembroke,	60
Oct. 30,	1806	William Porter,† Hadley,	84
Dec. 1,	1844	Alfred A. Lane,* Boston,	39
Dec. 4,	1835	Joseph Moriarty,* Boston,	36
Dec. 10,	1835	Abner B. Wheeler, Boston,	36
Dec. 14,	1811	Jacob Holmes, Leicester,	69
Dec.	1822	Henry Kittredge, Tewksbury,	61
1848.			
Jan. 13,	1846	William W. Billings, Springfield,	31
Jan. 23,	1846	Moses P. Greenleaf,‡ Newton,	30
Jan. 25,	1822	Benjamin W. Hildreth, Boston,	64
Jan. 30,	1836	Henry B. C. Greene, Boston,	47
Feb. 29,	1809	John B. Kittredge,† Framingham,	76
May 6,	1836	Marcellus Bowen,* Boston,	37

	1830	Thomas Fargues, Hon. Mem., Quebec.

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* Died of ship fever contracted in the course of professional duty.

† Retired members.

‡ Died of erythema anatomicum.

APPENDIX.

A.

The failures of the ordinary modes of endeavoring to introduce a pure atmosphere into buildings and to sustain it under all circumstances, are quite numerous. Although any others than systems with an exhaustive power are considered so obsolete as not properly to come within a treatise on practical ventilation, and have scarcely been alluded to in the body of this work, yet as many persons are yet to go through the trial from necessity or ignorance, a recapitulation of the sources of failure may serve to obviate a portion of an evil, if it cannot be wholly averted.

I. Relying upon the opening of lateral windows. In all temperate and cold climates, glass windows are made to open either by the raising the lower sash, raising the lower and dropping the upper at the same time, or by dividing the entire sash in the middle while it opens from bottom to top on both sides. This last arrangement is known as the French window, and has become quite common in the most expensive class of houses in the Atlantic cities.

It has doubtless been noticed, that in all the superior examples of ventilation introduced, the windows have had no share in the process. They have been considered, as in fact they are made in practice, as fixed immovably. Experience has ever demonstrated that buildings in which open windows are relied upon, are never ventilated at all. In climates like ours, the cold gush of fresh air into a heated room cools, but does not materially change the vitiated atmosphere, while the effect of the draught upon the health is too well admitted to require a moment's consideration. The windows opening at top and bottom, by the sliding of both sashes, may in some cases, as in theory they are intended, permit the air to enter at bottom and the heated surplus to escape at the upper opening. The slightest moving current towards these windows annihilates all hopes of this, and the cold air beats directly upon the heads of the audience or inmates.

Again, during several weeks in spring and autumn in the northern parts of the United States, the weather is in that state in which it is too warm for artificial fires, and too cold or damp, or both, for open windows. Here, of course, is no ventilation. It also often happens in cities, that in public and private buildings, the open window admits odors, sounds, and even insects, to a degree rendering defective ventilation the lesser evil. Our courts of justice are striking illustrations of the difficulty of hearing, from the noise in streets, except at the expense of an atmosphere corrupt enough to hebetate the faculties of judges, counsel, and jury.

The importance of double sashes in economy of fuel and equality of temper-

ature, renders some method necessary in houses of the better class to avoid any reliance upon windows which, of course, cannot be opened for ventilation when so duplicated.

Pleasant as the open window certainly is in our dwelling houses at times in the summer months of our climate, yet it may well be doubted, in these days when the manufacture of glass has become so perfect as to impede no vision and so cheap, in view of all the maladies produced by this the most fruitful of causes, whether that will not be a step of the highest value in "sanatory reform," which renders the window sash a fixture. Certainly the noisome odors, the pestilential vapors, and annoying sounds of large cities, must render supplies of pure air from some other source exceedingly desirable. And in country residences the chilling draughts of windows accidentally or heedlessly left open, inducing a long catalogue of diseases dependent on checked perspiration, and the crowds of disgusting or irritating winged insects ready to approach the evening's light, overbalance the few opportunities of that peculiar enjoyment which the passing current of genial air affords.

It is hardly necessary to advert to the universally admitted fact that the draughts of air, impinging upon part of the person as they do in entering an opened window, are much more pernicious than a complete exposure without the draught. Open flagged and dry walks, open verandas, or even projecting balconies, are accessories to dwellings more than compensating for the opening or sliding sashes, without destroying, as these must do, all hopes of a regular, reliable system of ventilation.

For some important experiments showing the cooling power of windows, and the consequent value of the double sash, the reader is referred to Dr. Wyman's *Treatise on Ventilation*, p. 389.

II. The uncertainty and insufficiency of flues or passages with no other aids, leading from the apartment to be ventilated. Experience the most extended, of this the most common of all modes of effecting this object, — indeed the almost exclusive mode of attempting it in the public institutions of this country, — abundantly demonstrates that it is entirely unworthy of being considered as a true ventilation. Still there is some degree of efficacy in it, and there are various circumstances which influence its value, from its most considerable action down to the point of utter nullity.

Where flues are used to allow the escape of vitiated and foul air, the usual expectation is that the fresh supplies are to be received from furnaces below, from stoves or fires within the room supplied from the outer air into an interspace surrounding the fire, or from steam or water pipes also within it in winter or cold weather; and through other avenues during the rest of the year. The circumstances modifying and influencing the efficiency of foul-air escape or eduction flues, as they have been called, are:

1. *That the flues are of insufficient size.* Almost all persons who make their first experiment in ventilation overrate the effect which the flue will produce, and consequently make it of inadequate dimensions. Sir H. Davy, as mentioned in the text, was invited with a *carte blanche* as to the arrangements and the expenditures, to design a system of ventilating the English House of Peers (the present House of Commons). In his plan the area of discharge was only one foot. In the recent method this was augmented to fifty

feet. Nor was the difference explained by there being a greater motive power in the first case, for the reverse was the fact.

In most of the prisons of this country, both on the Auburn and Philadelphia plan, without now referring to other weakening circumstances, the discharging flues are made of an area of sixteen to forty-eight inches only.

In the insane hospitals, the uniform system, when any has been provided in the original building, has been to make the flues for the bed-rooms, &c. within the brick partition walls, which are a foot or three courses in thickness. The size, then, is consequently one brick or four inches wide, by a length once and a half or twice as great, or from forty-eight to sixty-four inches area, the orifice being perhaps expanded to twice those dimensions. Occasionally flues eight inches square are found in the McLean Asylum; in some hospitals the orifice is covered, for some unknown reason, with a perforated cover of iron, reducing its area to a very few inches, and in other cases a couple of inch holes only are left.

Our court-houses, school-houses, lecture-rooms, and other places of continuous congregation, have been fitted with outlets in this proportion, most commonly occupying the vacant portions of the ornamental centre-piece in the ceiling. This contractedness of dimension also existed with the openings for the admission of fresh air — warm and cold, when any such happened to be provided.

It is not uncommon under more improved methods to see the orifice of the warm air-flue (when the air does not enter in many places or in diffusion), from two to three feet square, and the underground passage for fresh air sufficiently large to allow a man to pass nearly upright to examine and remove any impurity, such as leakage of sewers, rats, cats, and the like, which might contaminate the air.

The discharge-flues are also made larger or more numerous. The principle now seems to be, that as all flues are so readily commanded and diminished by a simple flap or valve register hung on a central point, or by hinges at the edges, and turned by a handle passing through the wall, it is better to construct them of the fullest possible size. If originally made in brick walls or under ground of too limited dimensions, it becomes exceedingly difficult to enlarge them. In designing a plan for the Butler Hospital for the Insane,— one of a class of institutions requiring the greatest amount of ventilation,— it was calculated that the flues would fill the whole central walls, wherein they could be carried perpendicularly or nearly so.

In brick edifices the external wall may constitute flues for some purposes, and their presence increases the dryness of the interior without diminishing the strength of the masonry. In public buildings, unless the exact size is beyond prospect of change, and the internal divisions are as certainly permanent, and the system of heating and ventilation has been unchangeably determined upon, no loss and probably great ultimate convenience would be found in carrying the flues in every point where space will permit. If needed they could be pierced and used as induction or discharge-flues; if not called for, they would constitute a modification of the ordinary *vaulting* or air-space left in many first class constructions.

2. *Want of directness of ascent.* When a motive power is intended, this objection is of diminished importance, but reference is now rather had to the

spontaneous movement induced by mere diminished gravitation. So in passages where very highly-heated air is admitted or discharged, the great rarefaction may overcome this obstacle to a greater or less degree. In the mere power derived from the animal heat or common warming of apartments, a change of direction only a few degrees from the perpendicular seems to produce a series of eddies against the upper side of the pipe, which impedes the ascent.

If a flue has more or less oblique angles, as occasionally is necessary to clear doors or other openings in the wall, the same eddy acting like a positive impediment occurs. The higher up and less frequently repeated, the less will be its injury.

If the flue turn at right angles or pass horizontally, or with a second upward run, the draught will be proportionally impeded as the angles are more frequent and the horizontal portions longer. In most cases a bend twice at right angles, at ordinary temperatures, without enlargement of the horizontal section, and without exhaustive power, is nearly as fatal to the discharge as an actual closing of the flue.

3. *The flues are not of a figure and finish calculated to favor the upward ascent of a fluid like air.* A tube with oblong area, or even a square made with rough bricks, and without *pargeting* or interior plastering, gives rise to so much friction, that its actual performance falls far short of its theoretical power.

The most effective shape is the circular cylinder, next the ellipitical, then the square with bevelled corners, and so on, down to the narrow parallelogram. Air in its ascent is disposed in obedience to obstacles which affect it, to take a spiral motion. The more regular and smooth its tube the less broken will be the spiral motion; the friction will be less, and of course the discharge the more increased. The effect of rough surfaces or of air compressed into the angles of the flue, is not only to retard its speed and quantity directly, but, what is an important loss when feeble ascensive power exists, by this delay to give time for the current to cool, which also acts still more disadvantageously by increasing the gravity.

In forming air-flues of metal, they are naturally made round. A little increased pains and cost more than repaid in augmented efficiency, would also furnish them in wood or brick-work of the best form and surface.

4. *Flues are made in exterior walls*, and the air which is intended to be discharged in consequence of its elevated temperature and diminished gravity is so cooled down by exposure to the exterior cold, as to cease to ascend; or even a reversed action may occur in certain conditions of the weather. The absurdity of this arrangement of small square flues in outer walls, was strikingly exemplified in the ventilation of the sleeping rooms of the South Boston Lunatic Hospital. As has been before observed, if an active motive power is employed, the objection to foul-air flues in outer walls becomes of little or no consequence.

5. *Foul-air flues, in the spontaneous mode* (*i. e. with no power to produce motion*), *opening directly into the open air*, are not to be depended upon for an upward action. The usual custom resulting from this difficulty, is to have them terminate in the attic or garret, from which the communication to the open air is made through some form of cowl, Chinese cap, or louvre.

A simple valvular arrangement to prevent regurgitations in sudden shifts of the wind, or when if turncaps are used they are caught "on the centre" so as to face windward, is often introduced with great advantage. A mode long used in the McLean Asylum is found free from objection. Just below the escape opening in the ridge of the roof, a broad platform a few feet long is laid so as to cut off four or five feet of the apex. At each end this is boarded up, leaving an oblong space about four feet by two. Wires are placed horizontally and vertically across this space, making squares of eight or ten inches, to sustain the valve. The valve consists of common cotton cloth, suspended by tacks from its upper edge, while the lower or free edge is stiffened by a thin strip of wood. It is placed within the wires. The ordinary upward movement keeps this thin curtain raised before it, scarcely impeding the current. Any retrograde action at once closes the flap against the wire, and prevents any backward flow.

When the roof is slated, and indeed, though less urgently, in other cases, the attic should be plastered to prevent the sudden cooling down of its air to a point below that in the house, when, of course, the air descends.

6. *Any flues depending wholly upon the action of cowls or turn-caps* in any of their numerous forms, are totally unequal to the demands of a constant, reliable ventilation. Many of these are re-invented every few years, and there is not perhaps a single form of them which may not find its prototype, or exact example, in the patent repertories and philosophical transactions. The reader who has the slightest faith in these machines will find a great number of sketches of them in Péclet's complete treatise, in Dr. Wyman's work, and his Report to the American Academy of Arts, &c., or in the curious researches of Ewbank. This latter practical mechanic demonstrated by actual experiment, as respects the revolving varieties, so far as trials by models are demonstration, that of all the known forms, the most effective was the simple bent funnel a little swelled at its mouth with a vane. If it has a curved line at the back, it must also least impede the natural ascent of air, when no current exists, — a serious objection to all the others, that of diminishing the upward movement in calms by at least one right angle, and usually by the friction of the interior.

The simple fact in regard to those auxiliaries is, that during certain constantly recurring and occasionally lengthened periods of entire stillness, when ventilation is most imperious, they are wholly useless. Employed with some other reliable motive power, the *plenum* and *vacuum* cowls, that is, one facing to the current and throwing the air into the underground flue or other supply channel — the other drawing off the air from the ceiling, are aids which may be collaterally employed at times quite economically, but are never to be trusted to alone.

Mr. Sylvester the ablest and most practised ventilating engineer of England, generally adds a simple form of these at each end of his ventilating current. The New York Public schools have one of each kind; pure air being admitted diffusedly as it enters.

7. *Flues opening for the egress of vitiated air at any point near the floor.* This method of constructing escape-flues, in the expectation that when the apartment is crowded full of warm air the lower stratum will be forced

outward and into them, has often been tried and always results in failure. In the earlier attempts at ventilating the McLean Asylum, this arrangement was well tested. The hot air was admitted near the ceiling, but no intensity of heat would drive it into the rooms to the extent of forcing out the lower, and of course if this action were maintained, vitiated stratum. Our text exhibits the occasional expediency and practicability, especially for the lower classes of insane patients, of opening exit flues at the floor, thence carrying them upwards to the main flue connected with the motive power, or directly down into a common flue passing into the shaft in the cellar.

7. *Discharge flues fail from the absence or insufficiency of the means of supply of fresh air below.* For example, the lately built hospitals for the insane usually have no other means of ventilation, than upward flues in the wall. All the air admitted into the halls and rooms in the season when fires are used, is that from the registers of one or two furnaces to supply twenty to forty rooms. In that period often of considerable duration of too high external heat for artificial warming, while it is yet too low and damp for open windows, the same channel and the cracks and openings of doors, constitute all the places of admission of fresh air ! It is singular that the first principle of pneumatics should have been thus often violated. To expect vitiated air to depart when no fresh air can take its place, or, on the contrary, that pure air should enter when the escape is not free and of adequate dimensions, is alike absurd.

When a high chimney or lengthened flue in a lofty building may be relied upon, the constant current may often be produced spontaneously through a small room, by opening a channel from its floor to the cellar. A series of very offensive water closets were rendered quite tolerable by this arrangement. A separate flue to each passed from the floor to the cellar, and another from the ceiling to the attic. The walls having originally been filled with flues, as recommended above, this arrangement was made many years after the erection of the buildings, by piercing and stopping them, as the case required.

B.

The extent of apparatus required in warming by steam and hot water, has been the subject of experiment, and experience of many years in practice, in fact since 1745; the results of which are given by various scientific writers, — Buchanan, Tredgold, Scott Russell, Arnott, Hood, Bernan, &c. Their experience is confined to the climate of Great Britain, and they differ considerably from each other. Yet keeping an eye to the occasional extremely intense cold of New England winters, the approximation may have some value as a basis for any practical undertakings here.

I. *Of Steam Heating.*

The following items of the more useful kind, taken from the table of Mr. Bernan, deduced by him from Buchanan and others, exhibit the practical effect of a given surface of steam pipe or other form of enclosing surface, in

maintaining certain areas of interior at a raised temperature, when the external air was below the freezing point of water.

A square foot of steam-warmed surface kept —

400	cubic feet	of space of a chapel,	(cast iron pipes,) at	60°.
370	" "	meeting house,	"	"
180	" "	dining room,	"	" 64°.
209	" "	dining room, containing 8,400 cubic ft. 15 feet high,		" 62°.
306	" "	public room, (cast iron pipe,)		" 54°.
175	" "	6 cotton mills each containing on an average 205,006 cub. ft. of space (c. i. pipe)		" 80°.
256	" "	counting house, lighted from ceiling,		" 61°.
243	" "	average of three do. lighted from side,		" 64°.
140	" "	average of seven rooms in a public building heated by an ornamental cast iron vase in ea. ¾ in. thick; greatest effect,		" 50°.
		one of the rooms fitted with double windows could be kept at		" 64°.
266½	" "	printing office; 4 floors, average,		" 68°.

For uses requiring a much higher temperature, as for forcing in greenhouses, drying rooms, the quantity of surface is, of course, much augmented; for example, in a forcing house, 30 cubic feet of space were kept at 80°, by each foot of steam surface; in drying houses requiring from 90° to 100°, that amount of radiating surface supplied from 40 to 80 cubic feet. As these purposes are not within the scope of the present inquiry, it is not necessary to pursue them.

The application of these elements is obvious. For example, if it be required to ascertain the amount of iron surface for a factory containing 100,000 feet of space, divide this quantity by 175 : the quotient 574.2 will be the number of feet of steam surface which will secure a temperature of 80°, while the external air is below 32°. Or if of a dining room of 5,000 feet space, this divided by 140 will give 35.7 square feet of steam surface to maintain a summer heat. Mr. Bernan remarks that these though rough, are safe practical estimates, which may be applied and depended upon in numerous analogous cases.

Mr. Tredgold's formula for determining the extent of steam pipe, is this: If, for example, 200 cubic feet of air is to be supplied per minute, to a room to be kept at 60°, (external air at 32°,) he considers the average surface heat of the steam pipe as 200° — not 212°, the steam point. Then, if the difference between the required temperature and the external air be multiplied by the number of cubic feet of air required per minute, and the product be divided by 2.1 times the difference between 200 and the temperature of the room, the quotient will be the number of square feet of surface required. Thus $(60 - 32) \times 200 = 5600 \div 2.1\ (200 - 60°) = 19$ square feet of iron pipe or other surface of metal.

The first of these methods omits any consideration of the heat removed by ventilating processes. Mr. Tredgold's omits any reference to the space to be heated. Dr. Arnott takes into view the heat lost by glass windows, by crevices,

and by openings for change of air. He estimates that in the winter day, the thermometer at 10° below 32°, to maintain a temperature of 60°, there must be of surface in contact with steam, (which surface in actual average practice he also considers as at 200°), one foot square for every 6 feet of common window glass ; as much more for every 120 feet of wall and ceiling of ordinary materials, and the same for every 6 cubic feet of hot air escaping per minute as ventilation, and replaced by fresh air. A window of usual tightness allows 8 feet of air to pass per minute, and there should be allowed at least 3 feet of air a minute, for each person in the room. Thus, suppose a room 16 feet square by 12 feet high with two windows, each 7 feet by 3, and with ventilation by them or otherwise, at the rate of 16 cubic feet per minute.

42 sq. feet of glass requires	1 foot of	steam	surface	for every	6 ft.	=7 feet,
1238 feet wall, ceiling, &c.	"	"	"	"	120 ft.	=10⅓ feet,
16 feet per minute,	"	"	"	"	6 ft.	=2⅔ feet,
						20 feet,

that is, 20 feet of pipe 4 inches in diameter, or other equivalent of metallic vessel.

Let us apply the elements of Dr. Arnott to a common Massachusetts school-house for 100 pupils. The common dimensions of such a school-room would be, say 40 feet long, 22 feet wide, and 12 feet high, containing of superficial square feet of surface, $40 \times 22 \times 12 =$

3248 f. at 120 ft.	for 1 ft.	of steam	surface,	is	27 ft.
Windows, $7 \times 3 \times 6 = 84$ f. at 6 ft.	"	"	"	"	14 "
Ventilation 100 persons $\times$ 3 f. $= 300$ f. at 6 ft.	"	"	"	"	50 "
					91 ft.

Or ninety-one feet running of 4 inch pipe, a length which would be a little short of passing around at the angle of the floor on three sides of the room. If larger or smaller pipe or if enclosing vessels of other shapes be used, the running length or area will be readily calculated.

The size of the boilers will be fixed by the capacity of the pipes. As much space for steam should be left in the boiler, as is equal to all the steam in the pipes. The space for the water should be somewhat, say one eighth less. In the illustration just cited, to find the size of boilers :

	Circum. of pipe.							in a gallon.			
$12 \times 2 \div 2 = 12 \times 12 = 144 \times 91 = 13{,}104 \div 231 =$										56	gallons for steam,
Less one-eighth, for water,										44	
Size of boiler,										100	gallons.

II. *Of Heating by Hot Water.*

The cause of the circulation of hot water in tubes leaving and returning to a boiler is undoubtedly owing to the diminished gravity of the fluid when rarefied by heat. The moving power will depend, therefore, on the difference of distance at which the upper or warm, and lower or cooler pipes are placed from each other, the directness of the current and the heat withdrawn. Mr. Hood says he has known as small a difference as three inches where the pipe was very small, (two inches in diameter,) and free from turns and angles. He however regards a foot as the minimum height which will

obtain a good circulation, where the pipes do not dip below the horizontal level, as in passing doors.

The pipes may be carried over every story of a house. In this case, the boiler must be closed, and made capable of standing the great pressure represented by the widest base at the boiler, and the highest line of the column — a pressure apt to occasion leakage, unless the mechanism of the joints is extremely perfect.

In case the pipes are carried horizontally in flues, or convoluted in air chambers, where no point of the circulation is higher than the level of the boiler, no considerable strength of boiler or of joinings is required. It is not unusual, under these circumstances, to allow the boiler to be covered only with a loose cover, the evaporation from it passing directly into the air flues.

It is by no means necessary that the pipe connecting the radiating tubes with the boiler, should be of full size. Mr. Hood prefers in using four-inch pipes of cast iron (which is his favorite size), that the connections should be only two inches in diameter.

Masses of pipes may be thrown into air-chambers, located at points in the cellar determined by the position of the apartments above to be warmed. In such cases, the difficulty of distributing hot air horizontally in channels, is provided for, and the great advantage of a direct perpendicular supply-flue is secured. The connections between these receptacles of pipes, each of which has its fresh-air channel, may be kept up with the boiler and with each other by much smaller pipes, wound with cloth, or other non-conducting material.

It is common to make the difference of level of the pipes several feet. The height of the basement or cellar, and the form of vertical boilers, with tubular flues, much used of late for this purpose, allow as much variation as the case requires, where no attempt is made to send pipes above.

The quantity of heat removed in the air-chambers or channels containing the pipes, by conduction, is four-fifths of the whole. The remaining one-fifth, distributed to the walls of the containing cavity by radiation, is not wholly lost, since it is again given out to the air when the temperature is lowered.

Where there are various series of pipes leaving the boiler, a regulating cock, or the simple and much superior valve used for such purposes of late, should be added, to regulate the flow as circumstances may require. As the current depends not only on the difference of level, freedom from turns and angles, horizontal or vertical, but also on the rapidity of reduction of temperature, some care is required to regulate the various distributing coils or aggregations, by shutting off a portion of the flow to those where an undue proportion of heat is received.

It is obvious, that the impinging of a full current of extremely cold air upon one series, would reduce the temperature, and consequently the gravity and the activity of motion, much beyond the rate common under other circumstances.

In using the mild hot water apparatus, or that in which the circulating fluid does not rise above 212°, so termed in contradistinction to the method invented by Mr. Perkins in which water may even be heated to a degree sufficient to inflame wood in small strong pipes, the quantity of pipe used is about the same as that employed with steam, and of course the methods of calculation just given may be applied. Mr. Hood, the latest and best writer

on this subject, gives the following rule as more accurate than any means hitherto found for calculating the radiating surface of simple hot water tubes. "Multiply 125 by the difference between the temperature to be produced in the room and that of the external air; divide this product by the difference between the temperature of the pipes and that of the room; then multiply the quotient by the number of cubic feet of air to be warmed per minute; this product divided by 222, will give the number of feet in length of pipe 4 inches in diameter. If 200 cubic feet of air is to be warmed in a minute, and the external air is at 32°, the room at 60°, and pipe at 200°, then $125 \times 28 \div 140 \times 200 \div 222 = 225$ feet of 4 inch pipe required. This multiplied by 1.38 will give the length of 3 inch pipe; by 2 of 2 inch pipe, or four times the length of one inch pipe."

The table following gives by inspection, the amount of radiating surface to produce a given result.

Table showing the quantity of pipe, four inches in diameter, which will heat 1,000 *cubic feet of air per minute, any required number of degrees; the temperature of the pipe being* 200° *Fahrenheit.**

Temp. of ext. air.	Temperature required for the Room.									
	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°
10°	126	150	174	200	229	259	292	328	367	409
12°	119	142	166	192	220	251	283	318	357	399
14°	112	135	159	184	212	242	274	309	347	388
16°	105	127	151	176	204	233	265	300	337	378
18°	98	120	143	168	195	225	256	290	328	368
20°	91	112	135	160	187	216	247	281	318	358
22°	83	105	128	152	179	207	238	271	308	347
24°	76	97	120	144	170	199	229	262	298	337
26°	69	90	112	136	162	190	220	253	288	327
28°	61	82	104	128	154	181	211	243	279	317
30°	54	75	97	120	145	173	202	234	269	307
Freezing 32°	47	67	89	112	137	164	193	225	259	296
34°	40	60	81	104	129	155	184	215	249	286
36°	32	52	73	96	120	147	175	206	239	276
38°	25	45	66	88	112	138	166	196	230	266
40°	18	37	58	80	104	129	157	187	220	255
42°	10	30	50	72	95	121	148	178	210	245
44°	3	22	42	64	87	112	139	168	200	235
46°		15	34	56	79	103	130	159	190	225
48°		7	27	48	70	95	121	150	181	214
50°			19	40	62	86	112	140	171	204
52°			11	32	54	77	103	131	161	194

Find the external temperature in the first column, and the required temperature of the room at top; the number at the intersection of these columns will represent *the number of feet* of four inch pipe.

The principle which fixes the size of boilers in the hot water apparatus has no analogy to that in steam boilers. The size of boilers is based upon the quantity of fire surface which may be thought necessary to keep the water heated; — the greater this surface in reference to the capacity of the pipes and the less the quantity of water, the sooner it is heated. Of course the

* Hood on Warming Buildings, page 97.

boilers are best, made of a shape in which the under side is concave or reverberatory, and the top and bottom distant only a few inches from each other. The nature of the fuel will influence the extent of boilers. Mr. Hood says, that one square foot of boiler surface exposed to the direct action of the fire, will be sufficient to supply the necessary heat to forty superficial feet of pipe, or other radiating surface. This, he observes, is a very good proportion, suitable for nearly every purpose. This is a considerable reduction from the maximum, which is about 50 feet of pipe to the foot. This however makes an apparatus much easier managed, and more effective and certain than where only the extreme is calculated upon. He gives the following table as deduced from the allowance of one foot of direct boiler surface to 50 feet of radiating surface.

	Feet 4 in. pipe.	Feet 3 in. pipe.	Feet 2 in. pipe.
4 square feet,	200	266	400
6 " "	300	400	600
8 " "	400	533	800
10 " "	500	666	1,000
14 " "	700	933	1,400
20 " "	1,000	1,333	2,000

In modern practice, the forms of boilers filled with small tubular flues, like those of the locomotive engines, are much employed for steam and hot water warming.

While I have thus adduced the latest and most practical foreign authorities as to the quantity of steam-warmed, or hot-water-warmed metallic surface adequate to produce a satisfactory temperature, under different circumstances, I cannot conceal my conviction that the great element of calculation is so essentially changed in the climate of New England, that our knowledge of the extent of apparatus to heat adequately private or public houses must be reached in an entirely different method. This element is the prodigious reduction of temperature during our winters, not infrequently reaching an extreme, for days, so much below the experience of Great Britain, as certainly to render nugatory any calculations based on the results of experience in that country. It must not be forgotten, that any provision for heating must be capable of meeting these extraordinary cold seasons. However well all average conditions might be fulfilled, no apparatus not fitted for the ultimatum of New England winter cold could be tolerated, except provision were made in other forms of heating, to aid in the extreme emergencies.

In advising the extent of apparatus of these kinds, I have been disposed to throw aside the experience of other climates, and proceed tentatively until an experience, precise and definite, of our own shall be attained. It is easy to contrive arrangements by which pipe, whether for steam or hot water, shall be added successively in the air-chambers, until the exact point is reached. The furnaces for anthracite, especially, and for any fuel, can be made so as to admit of a very considerable increase of the usual amount of consumption, both by increasing the draught and by enlarging the grate.

If the heating is by steam, a second boiler can be added, if the additional quantity of pipe required in the air chambers cannot be supplied by the first.

The only objection to these successive additions is, provided the probability or possibility of future additions is kept in view from the first, the difficulty of

making estimates or contracts for the proposed heating. As, however, the most common uses on a large scale will for some time, at least in this country, be for hospitals and institutions, where, if well done, the question of cost is quite secondary to that of hygienic perfection, the method of providing by contract will not be likely to be selected, until a greater amount of experience is aggregated, it is not much to be regretted that we must reach our end in this way, by trials.

In our climate, I should prefer to form a judgment of the quantity of apparatus, by a comparison drawn from the amount of fuel used in the common way, rather than from the best data now accessible. The same quantity of fuel containing (if its combustion is equally perfect), as much caloric when used through one medium as in another, it would not be difficult to adapt the fire surface to meet the estimated quantity of fuel to produce a certain result, if consumed directly.

For example, if a hospital was known to use a given quantity of anthracite or bituminous coal or wood per annum in hot air furnaces, it would be safe to have the boiler or heater grates made on a scale to consume the like quantity. This estimate would be controlled by any influencing circumstances, such as a more extensive waste in ventilation, a less escape at the point of combustion, &c., which might seem to demand a greater or less quantity of warming material. It is of course not pretended that the methods recommended of steam or hot water warming, are the most economical. It is the quality, rather than the quantity of the heat which constitutes their superiority. Still, however, there can be, from the nature of things, no waste in fuel, circumstances of waste being the same.

It fortunately is true in practice, that the size of the hot air chambers in which the radiating surfaces are enclosed, is quite an immaterial consideration. It may be made sufficiently large to admit twice or three times as much tube as may at first be thought adequate, without any loss of advantage, in case increased quantities are added.

In practice, the shape in which the radiating surface is arranged is a matter of considerable moment. Pipes are much more conveniently connected than plates or more solid forms, and those of 3 and 4 inches are more convenient than larger sizes, so that it is preferred to use a double small pipe, (which also allows one set to be disconnected by cocks), rather than a larger single one.

Of late years, welded iron tube of $\frac{3}{4}$ to 2 inches is much used for steam and hot-water warming, as well as for many purposes for which lead pipe was formerly used. It is much cheaper than lead, for pumps, aqueducts, &c., where any considerable amount of pressure is to be provided for, and has as regards the conveyance of water for household uses the decisive advantage of involving no unpleasant or injurious consequences to those using it. The frequent poisonings from water conveyed in lead pipes, although doubtless to be explained chemically as ascribable to peculiar circumstances not touching all waters, cast a distrust and a sickening suspicion over its employment, entirely forbidding its adoption while this better method is at hand. The joinings are by screws, a *jacket* with a female screw uniting two lengths, a little white and red lead in oil being used. These pipes cost from 12 to 15 cents per foot for inch diameter. The cost of large cast iron pipes of 3, 4, or 6 inches diameter, will be found per foot of outside or radiating surface, to be considera-

bly less. The pipes cast for heavy heads of water can often be obtained, in consequence of their thinness, for their value as raw material. As the pressure of steam or hot-water heating is never more than one or two atmospheres, these fully meet every requisite.

Steam and hot-water pipes are connected in the same way. This is done by flanges brought together by screws, with some suitable substance, as pasteboard, rope-yarn, or felt, covered with white or red lead in oil. This is a usual joint for steam under great pressure. The socket joint in which the end of one tube is enlarged for a length about equal to its diameter, and the next one inserted therein and the intervening space filled up with iron-cement is a much neater and equally strong process. After the iron cement is thoroughly dried, it becomes as strong as the iron itself.

The iron-cement for these junctions, as well as other purposes in steam and hot-water apparatus, is compounded in various ways — the main ingredients being sal ammoniac, iron filings or turnings, and sulphur.

Mr. Buchanan's recipe consists of 40 parts by weight of iron borings, to 1 part of sal ammoniac, and half a part of sulphur, well beaten together. As much sulphur renders the composition brittle, a smaller proportion is advisable, when no haste is required to admit the steam.

Mr. Peckstone gives the following directions. Take 1 lb. of iron borings, pound in an iron mortar until they will pass through a fine sieve; mix two ounces of powdered sal ammoniac, and one ounce of flowers of sulphur. Mix by rubbing in a mortar, and add water to a proper consistency, to be set up with a blunt caulking iron into the space between the pieces.

The French prescription for this important material, as given by Péclet, is one hundred parts iron turnings, two of sal ammoniac, one of flowers of sulphur, and half a part of sulphuret of antimony, to be mixed with urine enough to cover it. It will not attain its hardness for some days.

A packing of hempen rope smeared with a mixture of red and white lead in oil, and driven in with a caulking iron, also makes a secure and permanent joining for steam and hot water tubes.

In arranging pipes for heating by steam or hot water, it must not be overlooked to make an allowance for expansion of $\frac{1}{8}$ of an inch for every ten feet of pipe. A *drip* pipe to carry off the condensed steam is also necessary, unless the tubes are so raised at their farther extremity as to allow this to run back to the boiler.

Nor in hot-water pipes must be overlooked the tendency which air has to become impacted at some point of the circulation and thus prevent the whole current. It is safe on this account to have every elevated point, and every alteration of level of the pipe fitted with an air pipe rising as high as the level in the boiler, and provided with valves or cocks to permit the tubes to be freed from this embarrassing obstruction.

There are practical difficulties in carrying hot-water pipes to several stories in height, arising from the pressure of long columns of water straining the joinings and endangering leakage, which, in most cases, renders it usually more advisable to place the pipes in ranges in an air chamber in the cellar below to which the air is admitted by a flue from without, and drawn out in upright flues. The air chambers may be elongated in order to carry the air horizontally to any distance, or made at convenient points as respects delivery above, and the connection with the boiler kept up by simple

smaller pipes, protected from waste of heat by non-conducting coverings. In the new Penitentiaries at Wakefield, the upright flues withdraw hot air successively for some hundreds of feet. The only loss is from the conduction of the sides of the air flue, in which the hot-water pipes are suspended.

In the warming of the Massachusetts General Hospital, the water pipes are made of thin copper tube, about one thousand feet in length for each wing, and four inches in diameter, placed in air chambers.

I have been induced to go somewhat minutely into the detail of the methods of heating by steam and hot water, from several considerations. I know of no American work or reprint which contains any information on the subject. This mode of heating for health and luxury is vastly superior to any other, whether in public or private buildings, occupied by persons for any length of time. The fire-proof character it gives to buildings is important, and in public buildings for libraries, the fine arts, and the like, can scarcely be overestimated. The methods are simple, and were the mechanical fittings as well understood with us as they are in Europe and ere long will be here, a true economy would permit a very wide use of this elegant, convenient, and healthful addition to the comforts of civilized and refined life. So far as consumption of fuel is concerned, it is obvious that there can be no loss as compared with other modes, beyond the trifling expenditure of radiated heat at points, as the cellar, where it is not available. By the use of non-conductors around the steam and water boilers and pipes, this is reduced to a trifle. The waste of fuel by the chimney is better prevented than in most furnaces; and that serious drawback upon all modifications of hot-air furnaces, calorifers, or stoves furnished with fresh air from the outside, or even open grates and fire places — the escape of occasional or constant quantities of smoke, gases, and impalpable powders — is unknown.

The mechanical knowledge of steam power, of cast iron and other branches of metals, has become so general in this Commonwealth, that but little difficulty can be experienced in appropriating the delightful and hygienic advantages of the unequalled atmosphere thus produced, if a directing mind can be found to assume the responsibility and oversight of the needful fittings. Feeling much hope that this healthful mode of warming school-houses and other inhabited buildings by pure air warmed by contact with hot-water and steam tubes, may become general, as the facility and cheapness of providing the necessary apparatus are augmented — as they cannot but be with the advance of the community in the mechanical arts — another circumstance of detail may be of importance, especially to those who may have apprehensions of the safety of such measures under all circumstances, which persons of no practical acquaintance with the management of steam and heated water may naturally enough be presumed to feel. A closed boiler, although intended to be subjected to no strain or to the most moderate pressure only, may by carelessness or accident be subjected to a much greater or a dangerous force. The safety-valve, that simple and efficacious protection, may from neglect cease to act, or it may be secured by ignorance or mischief, so as to be a protection no longer. Again, the supply of water, so essential to safety, may be omitted.

With the possibility of a contingency like this occurring, few persons would feel safe in trusting a boiler large enough to warm a common school-house,

for instance, in the inexperienced hands which alone can be expected to manage such an apparatus in such a position.

It may be satisfactory to any who might, with this source of anxiety removed, be willing to introduce this beautiful method, to be assured that there is an additional mode of guarantying the safety of boilers from explosion, exceedingly cheap and simple; which we have the high authority of the most eminent writer on this class of subjects, Mr. Péclet, for saying, offers a complete efficacy against dangerous pressure.

This consists in the application of a plate of fusible metal to a hole in the upper part of the boiler, to which the steam has direct access. As the pressure of the steam increases, its heat augments in a certain well known proportion. The readiness with which the metal melts depends on the proportion of the ingredients, lead, tin, and bismuth, of which the plate is composed. A plate prepared so as to fuse at a point considerably below the proved strength of the boiler, would promptly become melted, giving free escape to the steam and preventing all hazard.

A royal ordinance in France prescribes the various points to be regarded in these safety plates, two of which must be placed to fuse at different temperatures on every steam boiler.

The plates should be of the same size as the area of the safety valve, and as they are liable to be swelled out at a lower point than that of fusion, and might be ruptured, they are covered on the outside by a perforated plate of iron, which of course gives no obstruction to the issue of steam, when the fusible metal has yielded to its expected heat. The arrangement is this:— A hole as large as the area covered by the safety valve, is bored into the top of the boiler; the fusible plate, one half to one inch thick, is placed over it with the usual cement to make a tight joint; the perforated iron plate or grating, is placed above and screwed at its outer edge to the boiler, thus confining the plate.

The following table gives the proportion of the metals to be alloyed together to resist the heat produced by steam at various pressures, of from one to eight atmospheres, or from fifteen to one hundred and twenty pounds to the inch. The last pressure is of course as much as will ordinarily be employed as a maximum in steam boilers.

Number of Atmospheres, each 15 lbs. to sq. inch.	Corresponding temperature of the Steam.	Actual temperature at which the alloy melts.	Proportions of the fusible alloy in parts.		
			Bismuth	Lead.	Tin.
1	100.	100.	8	5	3
1½	112.2	113.3	8	8	4
2	121.4	123.3	8	8	8
2½	128.8	130.	8	10	8
3	135.1	132.4	8	12	8
3½	140.6	143.3	8	16	14
4	145.4	145.4	8	16	12
5	153.8	153.8	8	22	24
6	160.2	160.2	8	32	36
7	166.5	160.5	8	32	28
8	172.	172.	8	30	24

The temperatures are here given by the Centigrade standard, the proportions of which to Fahrenheit's, are as one hundred to one hundred and eighty, or as five to nine.

As a means of saving calculation, the following table of the contents of tubes of various diameters is given.

Diameter of pipe. Inches.	*Contents of* 100 *running feet.* Gallons.
½	.84
1	3.39
1½	7.64
2	13.58
2½	21.22
3	30.56
4	54.33
5	84.90
6	122.26

The question whether large cast iron or small welded tubes should be used for steam or hot-water circulation, is readily determined by the relative economy of providing a given amount of radiating surface in each.

Where a steam pipe over four inches in diameter is used, it is said, that the difference of temperature in the upper and under portions, and, the consequent irregularity in expansion, gradually produces an upward curvature endangering the soundness of the joints.

In all steam or hot-water pipes, provision for the expansion and contraction is readily made. If the pipe is of large diameter it is suspended by chains or on rollers. If small, slipping joints with a screw collar, like the ordinary stuffing joints, are used. Or a bend in the pipe at one or more places, like the letter U, enables the two upper portions to be closed together or drawn asunder without disturbing the connections of the tubes.

C.

The plan recently proposed, and now in process of completion, for the heating and ventilation of the male side of the McLean Asylum for the insane at Somerville, Mass., is predicated on the experience of the English examples, and is arranged on Dr. Reid's general principles. It is considered as worth description, from its having some distinguishing peculiarities in its arrangements.

The building is in the form of a T, with the perpendicular line at an oblique angle (see Fig. 18, Pl. IV.) The two portions having been built at different periods, were unfortunately connected by the end of the earliest being inserted into the new portion, making a dark and unventilated interior, which it has been the object of recent designs to remove. The horizontal part is 90 f. × 40, and the diverging or old portion 80 f. × 40, each of three stories, and consisting of a gallery running the whole length with the day rooms,

dormitories, water-closets, &c. opening upon this central corridor. About ninety patients and twelve or fifteen assistants are accommodated in it, with the aid of some attic rooms and a separate lodge building.

The heating in former years has been accomplished with various forms of hot-air furnace, and the ventilation in the spontaneous method of late years, that is, by flues opening from the rooms and running up to the garret, whence the foul air escaped by chimney cowls turning to leeward. The earlier attempts referred to in a different part of this Appendix proving wholly nugatory, without a motive force which could not be readily devised, had been converted as far as possible into the simple escape flue from the ceiling; in more pressing cases, as in water-closets and lodge-rooms, these were aided by induction flues, running from the floor directly down into the cellar. It is hardly necessary to say, that under all the unfavorable circumstances of construction, size of flues, use of hot-air furnaces and absence of moving power to exhaust the foul air, the condition of the building as respects an abundant supply of pure, gently warmed air, was like that of all the other insane hospitals of New England, which are all furnished in the same manner, exceedingly imperfect and behind the age.

Years of consideration have elapsed without there appearing to be any way of overcoming the difficulties presented by the original omissions in the construction. The lighting was imperfect, and the heavy brick walls forming the partitions and resting in part on heavy groined arches below, could not be perforated with new flues of proper number and size. The interior walls supporting the attic story of the center and the dome, forbad the idea of any upward ventilation with motive power, as it would require the power to be in four distinct sections under the roofs, which could not be connected without sacrificing a considerable number of rooms and passages necessary for the accommodation of the patients and their due classification.

Under these complicated and embarrassing difficulties, the following arrangement was suggested, as that which would best meet the necessities of the case; — that about fifty feet of the centre of the front building should be eviscerated, and gallery walls be built up continuously so as to extend the corridor at a uniform width from end to end, and in these by a proper thickness of walls to furnish as many hot-air and foul-air flues as were required.

A large space, which in consequence of the peculiar twist and insertion of the wing, could not be lighted or otherwise made of value, and which was at the most central point of the two sections, was devoted to the use of a ventilating shaft. The ventilating shaft commences with a circular interior of about six feet diameter, and gradually tapers to about one half the bottom area. The entire height of the shaft is over seventy-five feet. The boiler for the hot water for heating was placed near this, and the smoke chimney of cast iron pipe, runs up until within about ten or a dozen feet of the top, when the foul-air shaft begins to be contracted to give impetus to the current at its exit. Here the smoke and gases of the chimney are to be delivered into the shaft.

The pure air is admitted through a long under-ground flue of about twenty feet area, terminating in a short tower, which was originally used to supply the hot-air furnaces. From the cellar, openings are made every few feet to permit the air (the current of which, often troublesome when the winds

are strong, is checked by being admitted into the open space or reservoir, as it were) to enter the long horizontal box or air channel divided into three divisions, each of which supplies a story of the house, and each has a couple of hot-water pipes, of large size, connected with the perpendicular boiler by small tubes. These circulate the water the whole length of the cellar, under the central corridor on the one side, and bring it back to a lower point in the boiler on the other, a distance of about one hundred and twenty feet. The partition into three channels was considered indispensable to make an independent heating and ventilation for each story, as it ever has been found impossible so to regulate air flues leaving the same chamber and opening at different heights, that there shall be a reliable uniformity in different stories.

The pure air enters all these channels in the cellar at orifices commanded by lids or registers, and each one of them delivers its heated air through the flues opening from its superior surface into the story for which it is designed, uninfluenced by its neighbor.

The warmed air is delivered *near the ceiling*, at quite a number of orifices in each corridor, and in those rooms where it was thought it would be required, and in as free openings as the space would allow. The foul-air flues commence near the floor of each room or gallery, and descend to the cellar floor in the wall. At a point opposite the ventilating shaft, the joint flues are turned by the shortest course so as to open beneath the foot of the shaft.

One of these foul-air flues is to be turned beneath the heating boiler so as to supply its air of combustion.

A little reflection will show that the objects of this apparently complex, but really perfectly simple arrangement are,

1. To destroy the effects of currents connected with the direction and force of the wind, by receiving the air into a reservoir.

2. To admit it in various places to the hot-water tube, and discharge it in each story at openings a few feet distant from each other, so as to produce a general diffusion.

3. To make the heating and ventilation of each story entirely independent of each other from the point where the air enters to its discharge.

4. To admit the heated air at the ceiling, and draw it off at the floor, to obviate the peculiar difficulties in insane hospitals from a reverse of this movement.

Precisely the same arrangement connected with the same ventilating shaft and the same boiler, will be necessary for the projecting wing.

Fig. 18 represents a plan of the male side, but the heating and escape flues are necessarily to avoid confusion, represented rather as a diagram, than as an actual plan. Fig. 19 is a cross section at the point noted in the ground plan by the dotted line. The warmed air is here figured by the solid lines and arrows entering the tri-partite wooden channels, *a a;* after impinging on the hot-water tubes running within, it passes in the corridor wall, and is delivered at the ceiling ; — the foul air, represented by the dotted line, descends at the floor, passes down in the wall, crosses into the drain at the bottom of the cellar, passes along that until near the shaft into which it ascends. The ground plan represents the course of the foul air from the rooms to the shaft.

The great number of warm and foul air flues, on each side of the corridor,

and each pair fulfilling the purpose just described, could not be represented on so small a scale.

Dampers are inserted at such places as are convenient to control the ingress and egress of the air. It has been within the purview of this adaptation, to carry an additional hot-water circulation into such portions of the wing, as from their occupation by cleanly and convalescent patients, do not require to have all the heated air used, and which is wasted, if not so required by passing off in unneeded ventilation.

The escape steam from the steam pump used to elevate the water used, will be turned into the centre of the shaft, to add to the motive power.

Fig. 19, Pl. iv. represents a section of the male wing at the point denoted by the dotted line *b*, of fig. 18; *a a*, are the longitudinal hot-air chambers in the basement, divided into three sections, one for each story, and enclosing the four inch cast iron water tubes; *b*, is the upright tubular boiler in which the extremities of the tubes enter at top and bottom, a difference of level of five or six feet; *c* is the exhausting shaft represented in plan at *a*, in Fig. 18; *d* is the foul-air drain, opening beneath the shaft, represented in plan by *c*, of fig. 18. *d* and *e*, of fig. 18, indicate the position of the hot-air chambers and water pipes, at the foot of the partition containing the ascending and descending air flues. For perspicuity, only a single pair of induction and eduction flues to each room are figured. It is obvious that in view of the several stories, a horizontal section would show a great number of flues. The dotted lines show the course of the foul air, the solid lines that of fresh air, each room of course having a flue of either kind.

The actual arrangement of the channels in the cellar for the hot-air and foul-air flues to terminate in, is not represented as it actually is, in the plate, for fear of obscuring the illustration of the principle. Fig. 25, pl. iv. is a cross or end section of the actual construction; *a a* is the partition wall separating the corridor from the side dormitories, as it appears in the cellar; H H H are the hot-air channels supplying the three stories respectively; v v v, the ventilating flues coming from the stories. The lower arrows show the course of the foul air as it enters the channels terminating under the shaft.

The upper arrows represent the fresh air entering from the reservoir impinging against the hot-water tubes, and then ascending by the perpendicular flues.

The registers slide before these openings, and are readily commanded through shutters left at convenient places in front.

The same arrangement is provided on the other side of the corridor.

The water-closets, bathing-rooms, &c, have the same downward ventilation as the galleries and dormitories. The shaft terminates in one of four chimney stacks, standing on the corners of the foundation of the dome.

D.

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Fig. 1.

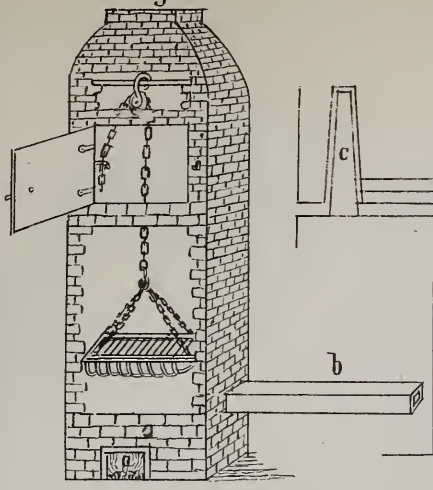
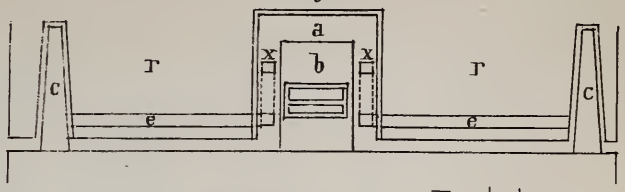


Fig. 2.



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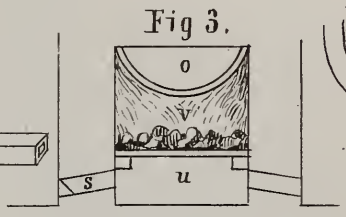

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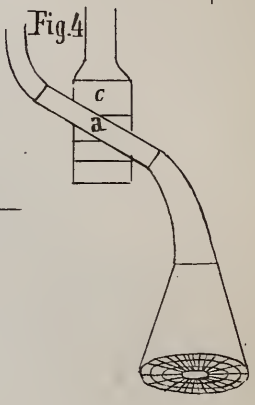

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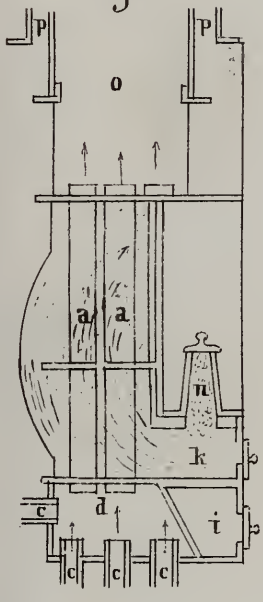

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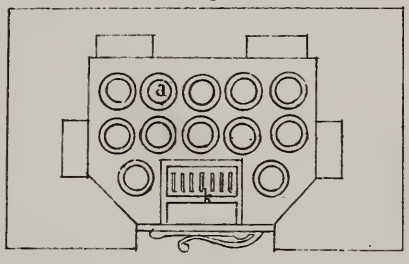

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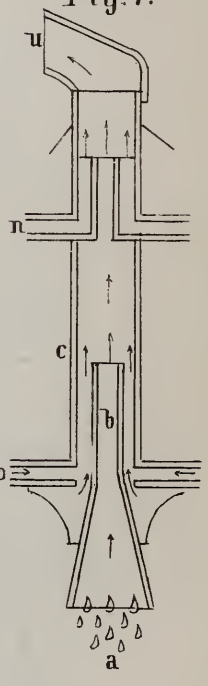

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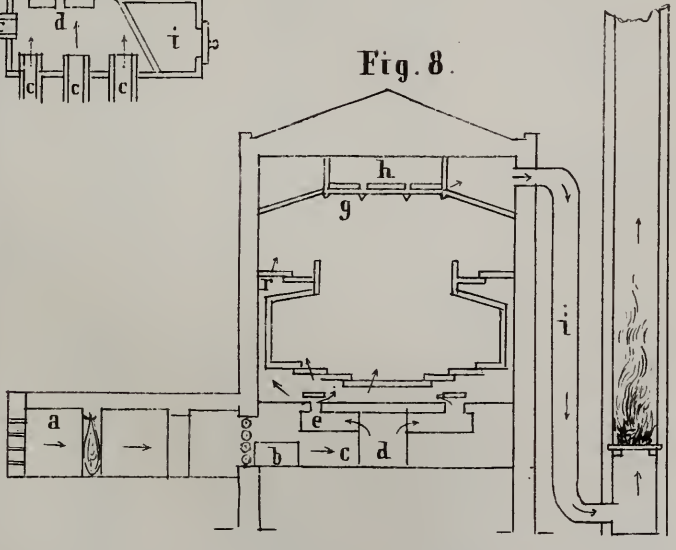

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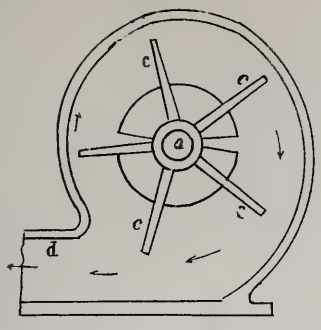
Fig. 22.



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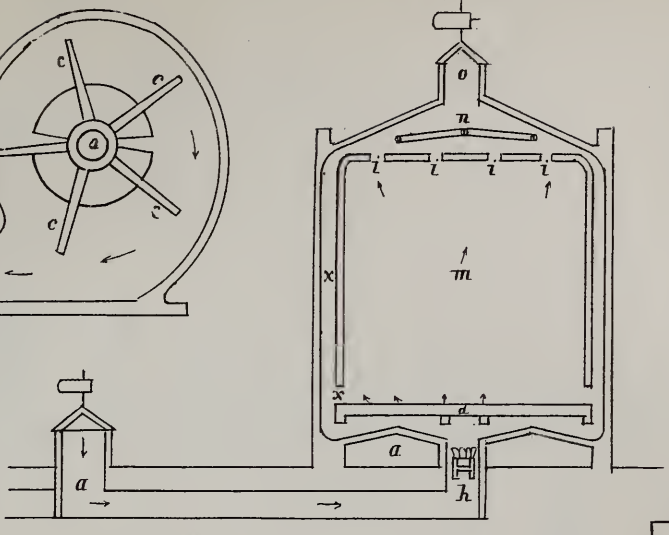

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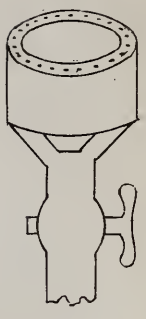

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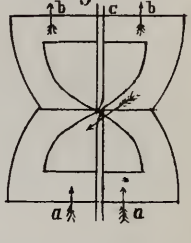

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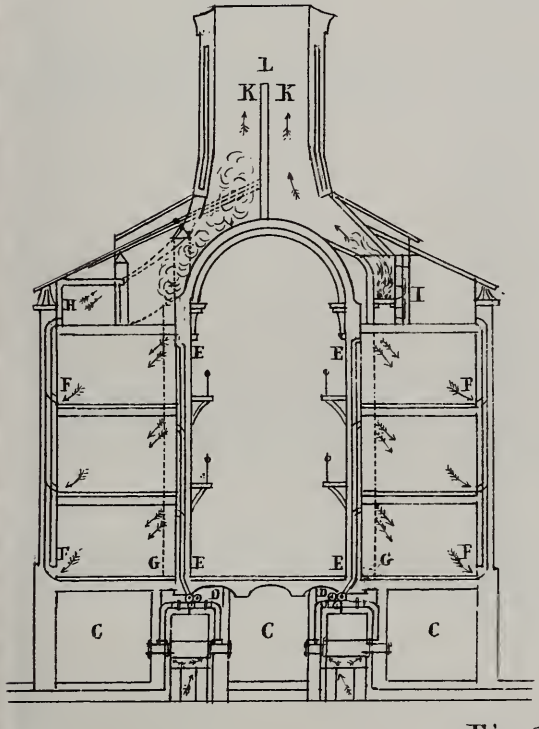

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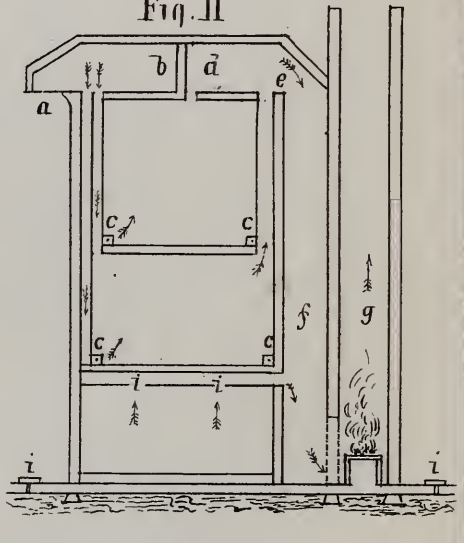

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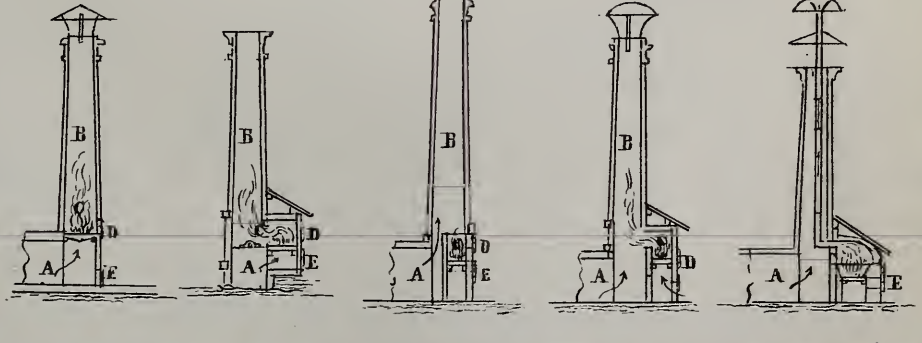

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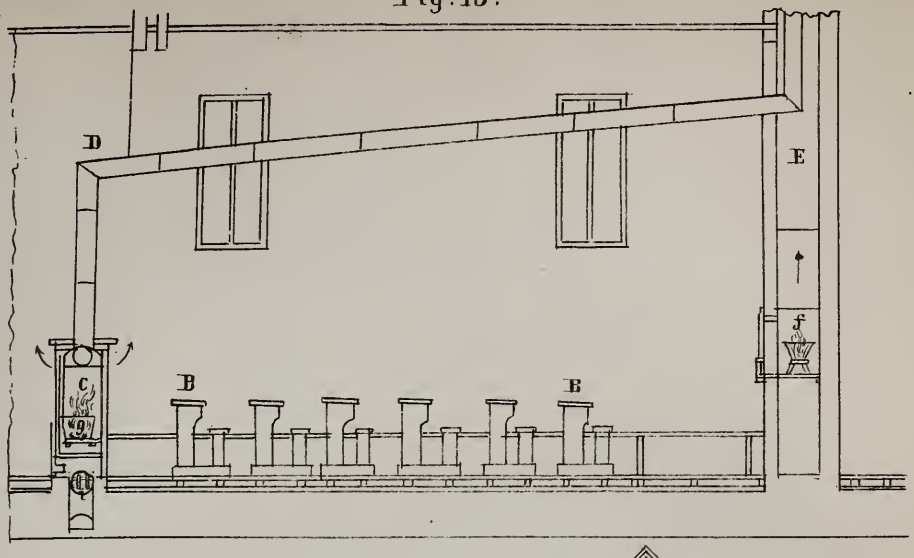

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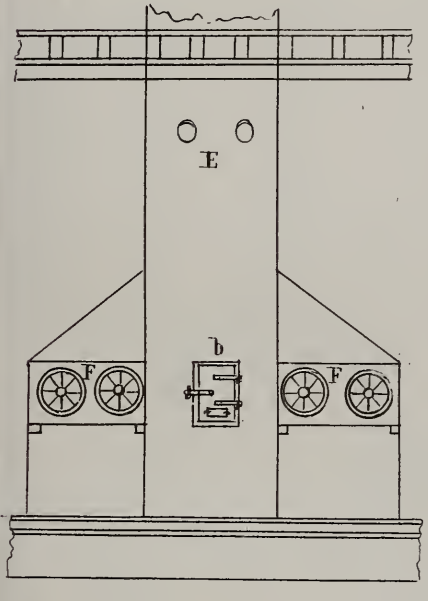

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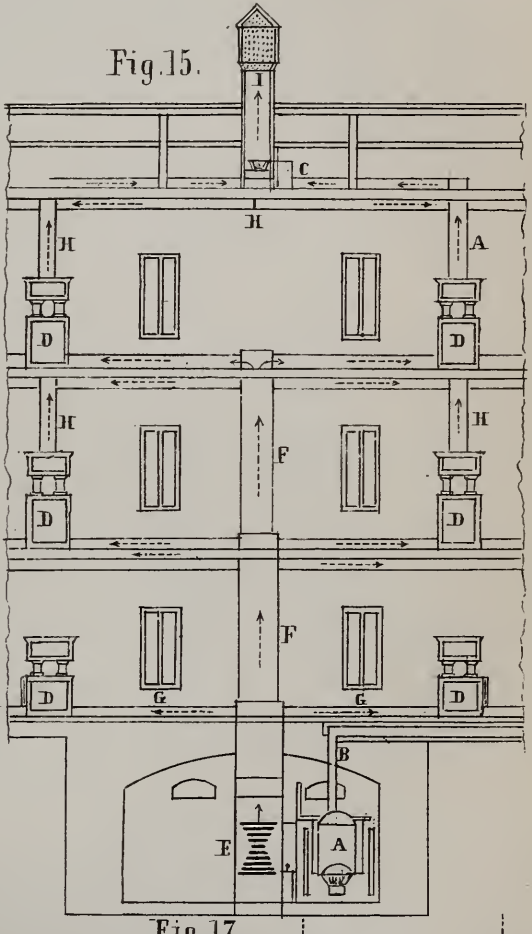

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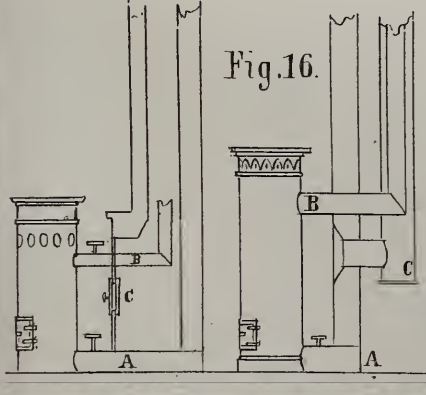

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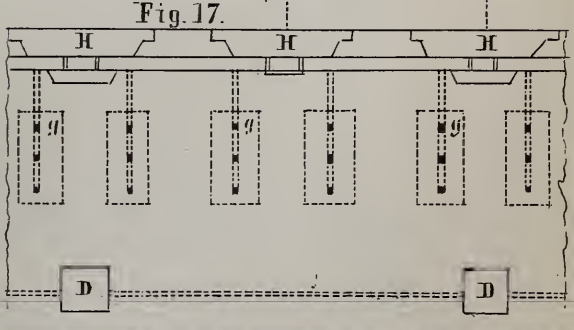

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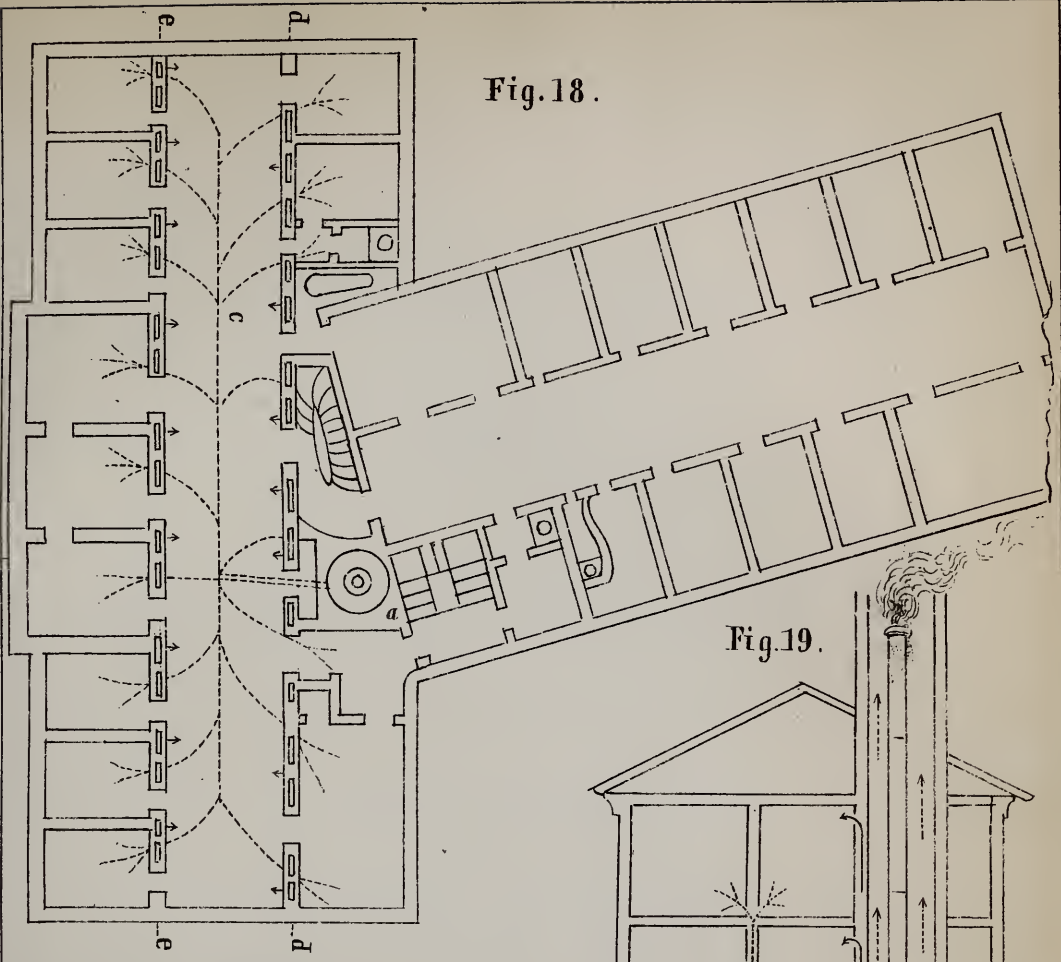
Fig. 18.



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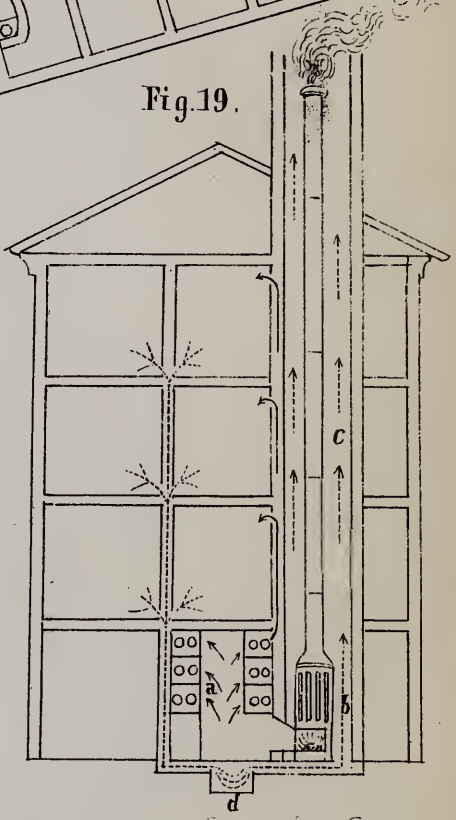

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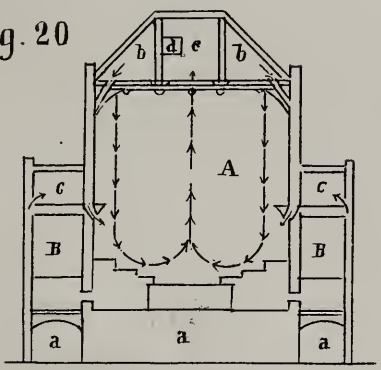

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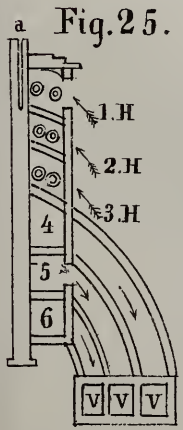

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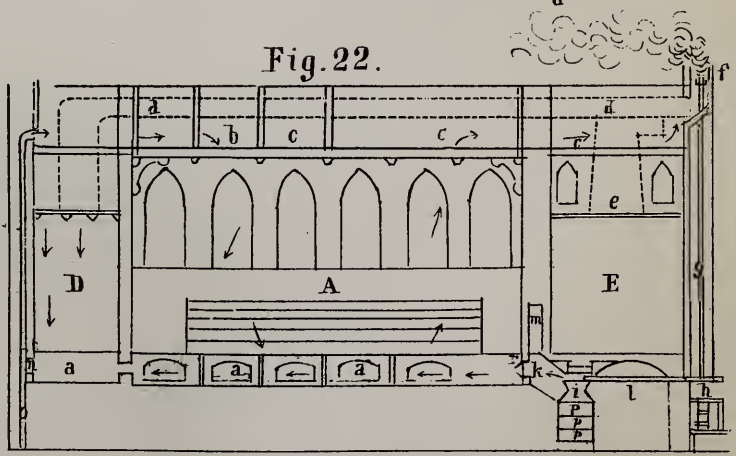

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APPENDIX.

1842.

PROCEEDINGS OF THE MASSACHUSETTS MEDICAL SOCIETY.

ANNUAL MEETING.

The Annual Meeting of the Massachusetts Medical Society was held on Wednesday, May 25, at the Masonic Temple, Tremont Street, at 10 o'clock, A. M.

The records of the last meeting of the Society, and of the meetings of the Counsellors were read.

The report of the Committee, appointed at the last meeting of the Counsellors, to ascertain and report to the Society the number of Fellows residing in each county, and within the limits of each District Medical Society, and the number of Counsellors to be elected in each, was read and accepted.

Letters were then read from the Secretaries of the Essex Southern, Barnstable, Hampshire and Hampden, Essex North District Medical Societies, stating the organization of the several Societies for the year 1842,—and nominating to the

Society the Fellows who had been selected for their Counsellors.

Voted, To proceed to the choice of Counsellors.

Drs. Howe, of Billerica, Lewis, of Boston, Whitney, of Framingham, Dalton, of Lowell, Clark, of Andover, and Willard, of Uxbridge, were chosen Scrutineers.

The Scrutineers reported the following Fellows as having been elected Counsellors:

Essex Southern District Society. Andrew Nichols, Abel L. Peirson, Ebenezer Hunt, George Choate, Edward L. Coffin, Joseph Reynolds, Samuel Johnson.

Worcester District Society. Stephen Bachelder, John Green, Edward Flint, Benjamin F. Heywood, Charles W. Wilder, George Willard, John G. Metcalf, Pierson T. Kendall, Joseph Stone, William Workman.

Berkshire District Society. Henry H. Childs, Asa G. Welch, Royal Fowler, Robert Worthington.

Hampshire District Society. Benjamin Barrett, Atherton Clark, Gardiner Dorrance.

Southern District Society. Paul Spooner, Alexander Read, William Gordon, Amory Glazier, Le Roy M. Yale.

Barnstable District Society. Joseph Sampson, Aaron Cornish, Henry Tuck.

Hampden District Society. David Bemis, John Appleton, Jehiel Abbott, James M. Smith.

Essex North District Society. Rufus Longley, Benjamin Atkinson, Henry C. Perkins.

Bristol County (not included in District Society). Caleb Swan, Alfred Wood.

Franklin County. Stephen W. Williams, Alpheus F. Stone, Christopher Deane.

Middlesex County. Thomas Bucklin, Timothy Wellington, Zadok Howe, William J. Walker, John C. Dalton, Josiah Bartlett, John O. Green, Anson Hooker, Elisha Bartlett, Nehemiah Cutter, J. S. Hurd, C. F. Chaplin, Simon Whitney, Horatio Adams.

Nantucket County. Elisha P. Fearing.

Norfolk County. Nathaniel Miller, Rufus Wyman, Robert Thaxter, Jeremy Stimpson, Ebenezer Alden, Henry Bartlett.

Plymouth County. Nathan Hayward, Ezekiel Thaxter, Paul R. Nichols.

Suffolk County. James Jackson, George C. Shattuck, Jacob Bigelow, Enoch Hale, S. D. Townsend, John Ware, Z. B. Adams, John Homans, Woodbridge Strong, John Jeffries, George W. Otis, Jr., Winslow Lewis, Jr., Samuel Morrill, Jerome V. C. Smith, D. H. Storer, John Flint, John D. Fisher, Charles T. Hildreth, Charles G. Putnam.

Report of the Committee on the condition of the Library, was read and accepted.

Report of the Censors for the first Medical District, and the Society at large, was read and accepted.

The Treasurer submitted his annual reports.

The amount of expenses charged the Society is	$1245 56
The sums received amount to	1870 31
Leaving a balance in the hands of the Treasurer of	$624 75

From the Report on the Permanent Fund, it appears, that the whole is invested in the Massachusetts Hospital Life Insurance Company, and, with interest, amounts to $7508 89.

The Committee appointed to examine the books and accounts of the Treasurer, have attended to that duty, and report, that the books are correctly kept, and the account is correctly cast and vouched.

(*Signed,*) JOHN JEFFRIES,
Z. B. ADAMS.

Boston, May 25th, 1842.

Voted, To accept the reports of the Treasurer, and that of the Auditory Committee.

The following Report of the Committee appointed by the Counsellors to take the requisite measures to obtain the action of the Legislature upon the subject of a more effectual registration and return of births, marriages and deaths, was read and accepted.

MASSACHUSETTS MEDICAL SOCIETY.

The Committee appointed by the Counsellors to take the requisite measures to obtain, if possible, the action of the Legislature upon the subject of a more effectual registration and return of births, marriages and deaths, respectfully report:

That at the last session of the Legislature an Act was passed, entitled "An Act relating to the registry and returns of Births, Marriages and Deaths," which was approved by the Governor on the 3d of March last.* Although this act

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* *An Act relating to the registry and returns of Births, Marriages and Deaths.*

Be it enacted, &c. as follows:

Section 1. The Clerks of the several towns and cities in the Commonwealth shall annually, in the month of May, transmit to the Secretary of the Commonwealth, a certified copy of their Record of the Births, Marriages and Deaths of all persons within their respective towns and cities, which may come to their knowledge; shall state the number of births and marriages, and the number of deaths, with the

does not provide so effectually for a complete system of registration and return, as the Committee would have desired, they are not without sanguine hopes, that it may be so far carried into effect, as to be of important service to the cause of science and humanity; and, at least, prepare the way for a more perfect system hereafter. Much of the efficacy and value of this law will depend upon the degree of co-operation of physicians; especially in regard to the returns of deaths and their causes. The Committee, therefore, respectfully recommend that the Society express its interest in this subject, and the disposition of its Fellows to aid in carrying into effect the provisions of the law, by the adoption of the following Resolution:

Resolved, That the Fellows of the Massachusetts Medical Society will cheerfully aid in carrying into effect the provisions of "An Act relating to the registry and returns of Births, Marriages and Deaths," by furnishing information of the

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name, sex, age (and if an adult male, the occupation), and the names of the diseases, of which all persons have died, or are supposed to have died, together with the cause or causes of the death, of all such deceased persons, so far as they may be able to obtain a knowledge of the same from physicians, or others; and any Clerk who shall neglect to make such return, shall be liable to a penalty of ten dollars, to be recovered for the use of any town or city, where such neglect shall be proved to have existed.

Section 2. The Secretary of the Commonwealth shall prepare and furnish to the Clerks of the several towns and cities of this Commonwealth, blank forms of returns, as herein before specified, and shall accompany the same with such instructions and explanations as may be necessary and useful, and he shall receive said returns, and prepare therefrom such tabular results as will render them of practical utility, and shall make report thereof annually to the Legislature, and generally shall do whatever may be required to carry into effect the objects of this Act, and of the several provisions of the Revised Statutes not inconsistent with this Act.

Approved by the Governor, March 3, 1842.

deaths that may come under their observation, with their causes, and by any other means that may properly pertain to their duty as physicians.

ENOCH HALE,
EBEN'R. ALDEN,
D. H. STORER,
} *Committee.*

Boston, May 25, 1842.

The resolution recommended by the above Committee was adopted by the Society.

Voted, That a proposition to alter the 43d and 45th By-Law, be referred to the Counsellors.

At one o'clock, the Annual Discourse, was read by Dr. Williams, of Deerfield, on the subject of the "Medical History of Franklin County."

On motion of Dr. Hale, it was

Voted, That the thanks of the Society be presented to Dr. Williams, for his elaborate and interesting discourse.

Before the reading of the discourse, a motion was made by Dr. Spofford:

That application be made by this Society to the Legislature of this Commonwealth, so to alter the 3d Section of the Act of March, 1803, as to allow of the election of such officers by the Society as are now chosen by the Counsellors, and that a Committee be appointed to make such application.

After considerable discussion, the consideration of the subject was suspended by the arrival of the hour for the discourse; after which, the subject of the motion was further discussed, and upon the question being taken, it was decided in the negative; 46 voting in the affirmative, and 84 in the negative.

The Society, upon the recommendation of the Counsellors, proceeded to the consideration of the subject of the expulsion of Dr. John Starkweather, of Upton;—and it appearing that Dr. Starkweather had admitted to a member of the Society, that he had received notice to appear before the Society this day, and he having neglected so to do, it was

Voted, To expel Dr. Starkweather;

One hundred and forty-eight members voting in the affirmative; One hundred and fifty-eight members being present.

It was

Voted, That the Society approve of the course of the Secretary in not procuring wine for the dinner, provided by him, for the Society this day.

Voted, To dissolve the meeting.

Attest, GEO. W. OTIS, JR., *Recording Secretary.*

The Fellows of the Society then proceeded to the United States Hotel and dined together, to the number of two hundred and eighty-four.

Proceedings of the Counsellors.

OCTOBER MEETING, 1841.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at their room, Masonic Temple, October 6, 1841.

The records of the last meeting were read.

The Corresponding Secretary reported the names of the gentlemen, who had become Fellows of the Society, since the last meeting of the Counsellors.

A petition of the members of the Society, residing in the northern part of Essex county, to be constituted a District Society, to be called the Essex North District Medical Society—granted.

The following Report of the Committee on the petition of Dr. John Starkweather was read and accepted.

The Committee appointed at the last meeting of the Counsellors of the Massachusetts Medical Society to consider and report on the application of Dr. John Starkweather, of Upton, in the County of Worcester, for leave to withdraw from the Society, on account of physical infirmity, &c., report as follows:

That they appointed a day of meeting, for the Committee, at Uxbridge, and gave Dr. Starkweather seasonable notice of such appointment, and desired his attendance. Dr. Starkweather did not attend the meeting of the Committee. In the absence of an official conference, a majority of your Committee have seen and conversed with Dr. Starkweather upon the subject referred to them. The doctor, although somewhat lame, from chronic rheumatism, attends to his professional business as regularly and as promptly, we believe, as any physician, in the circle of our acquaintance; and what with his business *proper*, as a member of the Massachusetts Medical Society, and his business *improper*, rides more miles than any of his brethren of the vicinage. In view of these reasons, we do not advise that leave be granted to Dr. Starkweather to withdraw from the Society.

Your Committee further report, that Dr. Starkweather wholly disregards the 10th By-Law of the Society, by adver-

tising for sale, and offering to cure diseases by, a medicine, the composition of which he keeps a secret; which averment will be more fully set forth by the appended advertisement. In conversation with a majority of your Committee, the doctor acknowledged that the 10th By-Law was a good rule;—that he had broken it with his eyes open, and he hoped the Society would deal with him as leniently as they could.

All which, is respectfully submitted,

GEORGE WILLARD,
JOHN GEO. METCALF.

Uxbridge, October 5, 1841.

HEPATIC ELIXIR,

A new remedy for Jaundice, Dyspepsia, Indigestion, Weakness, and Sourness of the Stomach, Loss of Appetite, Lowness of Spirits, Headache, Asthma, Rheumatism, Female Obstructions and Weaknesses, and all other complaints arising from a diseased state of the liver and its secretions.

The health and vigor of the human frame depend entirely in the digestion; the digestion on the biliary secretions. It is so obvious, therefore, that any cause operating to vitiate those secretions must, of course, be productive of derangement and disease throughout the system.

The liver is the largest gland in the body, and from its minute and tardy circulation, the seat of disease is much oftener attached to that organ, than is suspected. Bilious disorders are insidious in their attacks, slow in progress, and much varied in symptoms. Hence, many fall victims to them, from the nature of the disease not being seasonably detected, or properly treated; whereby, the chain of diseased action becomes strengthened, and the links more difficult to be broken. So general is the prevalence of liver complaints, that this organ is, probably, the seat of most ailments unattended with Febrile action; and that the grand source of health and disease is connected with the healthy or disordered functions of the liver; and, also, that almost every chronic or lingering disease arises from some defect there.

The symptoms arising from chronic disease of the liver are so various as to almost baffle description. They do not all appear in any indi-

vidual case, but show themselves in different persons in great variety, both in extent, number and degree, as the disorder exists in every gradation, and often, for a long time, so slight as to cause no alarm, being nothing more than a sense of fulness after meals, with some soreness of the bowels, a disposition to drowsiness, eructations of wind, ringing in the ears, dizziness of the head, coldness of the extremities, followed by burning in the soles of the feet and palms of the hands, an unpleasant and sinking sensation in the pit of the stomach. Some cases are attended with watchfulness, or unrefreshing sleep disturbed by dreams. Pain, also, in either side, most frequently in the left, extending to the shoulder blades. The mind is often fretful and irritated by the most trifling causes; the memory becomes impaired, and there is a general disinclination for bodily or mental exertion. The stomach sympathizes, and is so much disturbed as to lead the patient to suppose that his complaints arise from an affection of this organ, while it is only affected by being in the vicinity of the real disease. The bowels become irregular, costiveness alternating with diarrhœa, and frequently distend with gas. There is often a loss of appetite, at other times an unnatural craving of food. The urine becomes high colored, and is frequently voided with pain. The countenance assumes a sallow, cadaverous, or sickly hue. Many other symptoms might be named, but those already enumerated are the most prominent and common.

This medicine is not palmed upon the public as a panacea for all the "ills that flesh is heir to," but after an experience of more than thirty years in the practice, and careful observation of the treatment and remedies recommended by others in this class of diseases; and after seeing the benefits which have resulted from it, in many hundred cases, the proprietor feels warranted in recommending it, as superior to any preparation ever before offered. Being of a vegetable production, it may be taken with perfect safety, for any term of time, by persons of the most delicate constitutions, however low they may have been reduced by disease.

The most distressing cases of stone in the gall bladder have been cured by it; and in no case of this kind, where it has been used, has it failed of the most complete success.

It will be found a sure remedy for blotched faces, so troublesome to young persons. If taken in season, as a preventive, it will (by keeping the biliary and digestive organs in a healthy state) defend the system from the effects of fever and ague, the yellow, bilious, and autumnal fevers, which prey upon those and those only who are predisposed thereto by disease and derangement of those organs.

If costiveness is an attendant symptom, it will be necessary to take

a gentle cathartic, once in three or four days, while the bowels remain in that state. A blue pill at night, with a dose of Rhubarb, Castor Oil, or Senna on the morning following, will occasionally be found efficient.

It should be borne in mind that many of the diseases for which this medicine is prescribed may be of long standing, and obstinate in character so as to require a long time to make an impression on them. In such case, a steady and patient perseverance is necessary. It much too often happens that patients, reduced by disease, will, through despondency, discontinue the use of remedies, long before their true value can be tested, which, if persisted in, would be productive of the most beneficial results.

☞ The dose for an adult, is put at a tea-spoonful, three times a day; yet persons of weak and irritable stomachs will begin with a smaller quantity, and gradually increase the dose to what the stomach will retain without disturbance.

The following certificates, amongst many voluntarily given, are herewith published for the purpose of convincing the public, that the article is just what it purports to be, a valuable remedy for the diseases above named.

The Hepatic Elixir is prepared by J. STARKWEATHER, sole proprietor, Upton, Mass., by whom each bill of directions will be signed in his own hand-writing.

For sale wholesale and retail by CHARLES DYER, Jr., General Agent, South Main-st.; H. Stockbridge, Woonsocket Falls; Sam Green and Daniel Green, Pawtucket, R. I.; Clarke & Haskell, Lonsdale.—And by the Proprietor, and Druggists generally throughout the country.

CERTIFICATES.

This certifies that I have made use of Dr. Starkweather's Hepatic Elixir for several months past, and can truly say, *I have experienced the most beneficial results from its use.* For three or four years previous to my taking this medicine, I was seriously afflicted with Dyspepsia or Liver Complaint. I had consulted several physicians, and made use of various kinds of pills and other medicines before the public, some of which had an injurious effect, others seemed to give temporary relief, without in the least degree removing the cause of my complaint. I have been subject to a very weak and sour stomach, and been for weeks together, unable to eat the most harmless and soluble kinds of food without severe distress at the stomach, or vomiting it up immediately after taken. This was accompanied sometimes with a loss of appetite, at other times with an appetite, that neither any kind nor quantity of food could satisfy. I was troubled about a year before making use of this medicine, with a hard pain in the left side, attended with a kind of languor, great depression of spirits, and a general debility of the whole system. Nearly all those complaints or symptoms, which I have mentioned, with many others, are now entirely cured from the use of this Elixir, and what are not com-

pletely removed, do not occur so frequent, with far less violence, and are constantly decreasing. Therefore, from my own experience, and from what I know of the effects of the medicine generally, *I feel justified in recommending it to the public, as a perfectly safe and highly valuable medicine for all those complaints which it is designed to cure.*

GEO. W. THURSTON.

Grafton, Aug. 27, 1840.

—

This may certify that for several years I was subject to frequent and severe attacks of Colic, and which continued to increase upon me, both in severity and frequency, until I made use of the Hepatic Elixir, prepared by Dr. Starkweather, and can truly say, that I think myself wholly cured of the complaint, not having the least symptom of it, for the last six months past. I do, therefore, cheerfully recommend it to the public as a safe and valuable medicine.

LEVI L. LELAND.

Grafton, Oct. 1, 1840.

—

This may certify that I have been afflicted with Biliary Concretions (Gall Stones), and for a long period was subject at times to the most excruciating distress, and for which I have taken the Hepatic Elixir, prepared by Dr. Starkweather, and have obtained complete *relief, and view it to be a valuable remedy in such complaints.*

MARTHA JACKSON.

Unionville, Sept. 26, 1840.

—

This certifies that for twelve years I was afflicted with sickness, and during this time I applied to a number of the most skilful and celebrated physicians we have among us, without any permanent benefit, as my complaints continued to increase upon me.

To describe all my ill feelings would be out of my power. I had no appetite, was troubled with a severe pain in my side, great distress after taking food, a dull, heavy feeling in my head, almost amounting to stupidity, numbness of my limbs, could get no refreshing sleep, my food did me no good, my bowels were continually out of order, and I was obliged to take physic often, which would only give me momentary relief; all my difficulties continued to increase to such a degree, that I gave up all kinds of labor, and considered myself incurable. About two years ago, I procured a bottle of Dr. Starkweather's Elixir, which I took according to directions, and soon had the satisfaction to find my health improving, which gave me confidence in the medicine. I continued the use of it until I took about four bottles, which has restored me to as good a state of health as I ever enjoyed, so far as I know. I have labored the present season on a farm, and have not lost one days labor, nor one meal of victuals, during the time. So I can safely say, that the Hepatic Elixir, and this alone, has restored my health, for I have taken no other medicine since I commenced using it.

GIDEON HOLLEY.

Uxbridge, Aug. 20, 1840.

—

This certifies that my wife, *Mary Ann Johnston*, was for eight years afflicted with fits, of frequent occurrence, both by night and by day. She was also troubled with sourness of stomach, numbness and coldness of her limbs, dizziness of the head, loss of memory, obstinate costiveness, and many other complaints, unnecessary to mention, by which her health was reduced to a most deplorable state, and she was unable to perform any labor.

I had but little, if any, hopes of her recovery, as she had been for a long time under the first medical treatment without any permanent benefit. Having heard of the good effects produced by the Hepatic Elixir, prepared by Dr. Starkweather, she was induced to give it a trial; and I am pleased to say, that she has been benefited by it, far beyond my most sanguine expectations. She has taken five bottles of it; her health is now good, and she is fully able to attend to all her domestic concerns.

LEONARD JOHNSTON,
MARY ANN JOHNSTON.

Providence, R. I., Dec. 1, 1840.

On motion, it was

Voted, That the subject of Dr. Starkweather's petition, &c., be referred again to the same Committee, with instructions to prepare specific charges against Dr. Starkweather; to give him a copy thereof, and inform him that he will have an opportunity to be heard thereon, at the next meeting of the Counsellors.

Report of the Treasurer on the state of the demands against the members in the Berkshire District accepted.

Voted, That the Treasurer, under the direction of the President, be authorized to close the accounts of the Berkshire delinquent members.

Voted, That the thanks of the Counsellors be presented to Dr. Henry H. Childs, for his energetic measures to settle the accounts of the Society.

The subject of the publication of another volume of the Library of Practical Medicine was referred to the Committee on Publications, and the Treasurer.

Drs. Ebenezer Stevens, of Boston, George W. Snow, of Middleboro', and Chester Thomas, of New Salem, were elected Fellows.

FEBRUARY MEETING, 1842.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at their room, Masonic Temple, February 2d, 1842.

The President not being present, the meeting was called to order by the Secretary, who stated that he had received a note from the President informing him of his inability to attend, by reason of indisposition.

Dr. Bigelow, the senior Counsellor present, then took the chair.

The record of the last meeting was read.

The Corresponding Secretary reported the names of the gentlemen, who had become members of the Society, since the last meeting of the Counsellors.

On motion of Dr. Hale, it was

Voted, That the Corresponding and Recording Secretaries, with the Librarian, be a Committee to ascertain and report to the Society at the next annual meeting, the number of Fellows then residing in each county, and within the limits of each District Medical Society, and the number of Counsellors to be elected in each.

Drs. Z. B. Adams and Jeffries were chosen a Committee to audit the Treasurer's accounts.

Drs. Otis and Flint were chosen a Committee to examine the Library.

Drs. Putnam, J. V. C. Smith, and Homans were chosen a Committee to procure kine-pock matter for the Society.

The Committee on the case of Dr. John Starkweather, of Upton, presented a copy of the notice to him of charges preferred against him, and a subsequent report to the Counsellors of their proceedings, as follows:

To Dr. John Starkweather:

At a meeting of the Counsellors of the Massachusetts Medical Society, held at Boston, October 6, 1841, it was

"*Voted*, That the subject of the petition to Dr. Starkweather, for leave to resign his Fellowship, be recommitted to Drs. Willard, Metcalf, and Workman, with instructions to prepare specific charges against Dr. Starkweather; to give him a copy thereof, and inform him that he will have an opportunity to be heard thereon, at the next meeting of the Counsellors."

In pursuance of the instructions of the foregoing vote, the undersigned, a majority of the Committee aforesaid, have prepared the following specific charge:

That Dr. Starkweather, contrary to the 10th By-Law of the Massachusetts Medical Society, publicly advertises for sale, a medicine, called the Hepatic Elixir, the composition of which he keeps a secret; and, also, offers to cure diseases by the same medicine, still keeping its composition a secret.

A copy of this communication will be reported to a meeting of the Counsellors of the Massachusetts Medical Society, to be holden at the Masonic Temple, at Boston, on Wednesday, the 2d day of February next, at 11 o'clock, A. M., at which time and place any communication from you, either oral or written, will be received.

GEORGE WILLARD, } *Committee.*
JOHN G. METCALF, }

Uxbridge, January 31, 1842.

The Committee, to whom was referred the petition of Dr. John Starkweather, for leave to resign his Fellowship, &c., state that the report on this subject by the undersigned, dated at Uxbridge, January 31, 1842, was handed by the Committee to Dr. Starkweather, who, on perusing the same, declared that the charge was not true,—that he makes no secret of the composition of the Hepatic Elixir, but that he has repeatedly divulged it to his medical brethren. So far as has come to the knowledge of your Committee, the Doctor has given different accounts of the composition of his medicine; he has never to our knowledge given any one a recipe, stating the proportion of the ingredients which enter into its composition;—he acknowledges that he advertises for sale, and offers to cure diseases by, the medicine in question, and declares that he shall continue to do so. We desire this may be considered as a supplement to our report above-mentioned.

GEORGE WILLARD, } *Committee.*
JOHN G. METCALF, }

Boston, February 2, 1842.

On motion, it was

Voted, That the Counsellors recommend to the Society, at their next annual meeting, to expel Dr. Starkweather from the Society.

Voted, That the Recording Secretary furnish Dr. Starkweather with a copy of this vote.

The subject having been referred to the Counsellors, by the Society at last annual meeting, it was, on motion of Dr. Jackson,

Voted, That the Counsellors recommend to the Society not to alter the 4th Section of the 2d By-Law.

MAY MEETING, 1842.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's room, Masonic Temple, Tremont Street, on Thursday, May 26, 1842, at 10 A. M.

The records of the last meeting were read.

The Corresponding Secretary reported the names of the gentlemen, who had become Fellows of the Society, since the last stated meeting of the Counsellors.

Voted, To proceed to the choice of officers for the ensuing year.

Drs. Bartlett, of Lowell, Alden, of Randolph, and Z. B. Adams, of Boston, were appointed Scrutineers.

Jacob Bigelow, was chosen *President;* Robert Thaxter, *Vice President;* Solomon D. Townsend, *Corresponding Secretary;* Samuel Morrill, *Recording Secretary;* Winslow Lewis, Jr., *Librarian;* Woodbridge Strong, *Treasurer.*

Censors. *For the Society at large, and the first Medical District,* Drs. John Jeffries, Z. B. Adams, Anson Hooker, Winslow Lewis, Jr., George W. Otis, Jr.

For the second Medical District, Drs. B. F. Heywood, C. W. Wilder, William Workman, Benjamin Pond, and Joseph Sargeant.

For the third Medical District, Drs. S. W. Williams, David Bemis, Gardiner Dorrance, John Appleton, and Edward E. Denniston.

For the fourth Medical District, Drs. H. H. Childs, R. Fowler, A. G. Welsh, R. Worthington, and N. S. Babbitt.

Drs. Hale, Homans, and Storer were chosen Committee on Publications.

Drs. Lewis, Otis, and Hooker were chosen Committee on Resignations.

Dr. Charles W. Wilder, of Leominster, was chosen to deliver the address, at the next annual meeting of the Society.

The report of the Censors for the first Medical District and for the Society at large, was then read.

Report on the Library read and accepted.

Report of the Treasurer on the annual income and expenses of the Society, and on the state of the Permanent Fund, together with the report of the Auditing Committee, read and accepted. [See Records of Society, May, 1842.]

Voted, That the thanks of the Counsellors be presented to Dr. Wyman, for his able and impartial services, as President of the Society.

Voted, That the thanks of the Counsellors be presented to Dr. Batchelder, for his faithful and punctual attendance to the best interests of the Society, as Vice President.

Voted, That the thanks of the Counsellors be presented to Dr. George W. Otis, for his faithful and highly satisfactory

services, as Recording Secretary, the period he has been in office.

Voted, That the Committee on Publications select and publish a volume of the Library of Practical Medicine, to be distributed at the next annual meeting of the Society, one copy to each District Society's Library, and to each retired member who shall apply for it, and to each Fellow who shall have paid his assessments; provided that the expense shall not exceed six hundred dollars.

Voted, That Drs. Jackson, Peirson, and Homans constitute a Committee, to consider and report, whether more convenient and permanent accommodations can be obtained for the use of the Society.

It was

Voted, That the Treasurer, with the concurrence of the President, shall have the power to settle all accounts with delinquent Fellows, whose debts are of more than four years standing, in any way deemed advisable by them.

This vote to continue in force one year.

Dr. Appleton read an extract from the records of the Hampden District Medical Society, requesting authority to hold their meetings, except the annual meeting for the choice of officers, in any place within the county of Hampden, which they may deem expedient.

On motion of Dr. Jackson, it was

Resolved, That the Counsellors consider, that the Hampden District Medical Society have authority to hold any meeting, other than their annual meeting, at any place, within the county of Hampden.

On a motion of Dr. Jeffries, that the Counsellors recommend to the Society, that the 41st "By-Law" be altered, and amended to read as follows. The certificates for such persons as are described in the preceding By-Law shall be in

the following form. The letters testimonial of A. B., of——, have been examined by the Board of Censors and found satisfactory. He is accordingly admitted to all the privileges of those who have been examined by the Censors.

C. D., President of Censors. } E. F., Secretary of Censors. }

Dated at ——, on —— day of ——, Anno Domini.

It was

Voted, That the whole subject of certificates of license be referred to a Committee of three, consisting of Drs. Jeffries, Hale, and Wilder.

A motion of Dr. Peirson, that the Counsellors recommend to the Society, that the third section of the thirty-eighth By-Law be modified, so as to allow of the attendance on two full courses of lectures, at some recognized medical school be received, as an equivalent for a compliance with the requirements of this section, was also referred to the same Committee. Also, a motion of Dr. Appleton, of Westfield, that the Counsellors recommend to the Society, at their next annual meeting, to amend the second section of the forty-third By-Law, by striking out the words "Recording Secretary," and inserting either of the Secretaries, was referred to the same Committee.

Voted, That the thanks of the Massachusetts Medical Society be presented to Dr. Civiale, of Paris, for the valuable present of his works on "Calculous Affections," and on the diseases of the "Genito-Urinary Organs."

Dr. Milton Fuller, of Medford, was balloted for, and elected Fellow of the Society.

Voted, To dissolve the meeting.

There has been no resignation of Fellowship since the last publication.

Dr. John Starkweather, of Upton, has been expelled from the Society.

The following gentlemen have become Fellows of the Society, since the last annual publication :

In 1841, James Deane, Greenfield ; Roderick A. White, Granville ; Marcus A. Shearer, Palmer ; Jesse W. Rice, Wilbraham ; John Hoyt, Natick ; Samuel L. Abbott, Jr., Boston ; William A. Briggs, Boston ; Joseph D. Mansfield, South Reading ; Charles F. Foster, Boston ; Samuel A. Orr, Bridgewater ; Ebenezer Stevens, Boston ; Chester Thomas, New Salem ; Washington B. Alden, Ludlow ; Albert White, Shutesbury ; William T. Parker, Bradford ; George W. Symonds, Littleton ; William H. Prince, Salem ; Erastus O. Phinney, Boston ; Henry O. Stone, Boston ; John B. Bridgman, Springfield ; Stephen Champlin, West Springfield ; George Seymour, Springfield ; Joseph P. Nichols, Attleborough ; James C. Parker, Shirley ; Edward M. Wheeler, Paxton.

In 1842, Alvan Smith, Monson ; James M. Nye, Lynn ; Charles Mifflin, Boston ; Leonard Morgan, Leyden ; Asa Lincoln, Brimfield ; Amasa Davis, Palmer ; Otis E. French, Boston ; Charles F. Hoffendahl, Boston ; Nathan Allen, Lowell ; N. Quincy Turrell, Sutton ; Johnson Clark, East Cambridge ; Frederick Hartman, Boston ; Aaron G. Babcock, Waltham ; Jonas M. Smith, Amherst ; Horatio Thomson, Belchertown ; Artemas Bell, Southampton ; James Thomson, Northampton ; —— Goodrich, Ware ; E. G. Kelly, Newburyport ; F. W. D. Osgood, Templeton ; C. F. Winslow, Nantucket ; Augustus G. Stickney, Townsend ; Jonas C. Harris, Hopkinton ; Lucius M. Scammell, Hopkinton ; A. Sumner Haskell, Deerfield ; Milton Fuller, Medford ; Louis M. F. Mighault, Boston ; Geo. A. Hammatt, Boston.

Officers of the Massachusetts Medical Society.

ELECTED MAY 26, 1842.

JACOB BIGELOW, *President.*

ROBERT THAXTER, *Vice President.*

SOLOMON D. TOWNSEND, *Corresponding Secretary.*

SAMUEL MORRILL, *Recording Secretary.*

WOODBRIDGE STRONG, *Treasurer.*

WINSLOW LEWIS, Jr., *Librarian.*

CENSORS. *For the Society at large, and the first Medical District,* John Jeffries, Z. B. Adams, Anson Hooker, W. Lewis, Jr., G. W. Otis, Jr.

For the second District, B. F. Heywood, C. W. Wilder, William Workman, Benjamin Pond, Joseph Sargent.

For the third District, S. W. Williams, David Bemis, Gardiner Dorrance, John Appleton, Edward E. Denniston.

For the fourth District, H. H. Childs, R. Fowler, A. G. Welch, R. Worthington, N. S. Babbitt.

Committee on Publications, E. Hale, J. Homans, D. H. Storer.

Committee on Resignations, W. Lewis, G. W. Otis, A. Hooker.

Charles W. Wilder, M. D., of Leominster, is appointed to read the next annual discourse.

Officers of District Medical Societies.

ESSEX SOUTHERN DISTRICT SOCIETY. Andrew Nichols, *President.* Abel L. Peirson, *Vice President.* George Choate, *Treasurer.* William O. Richardson, *Librarian.* William Mack, *Secretary.*

Worcester District Society. Charles W. Wilder, *President.* Joseph Stone, *Vice President.* Wm. Workman, *Secretary.* Joseph Sargent, *Treasurer.* Henry G. Davis, *Librarian.*

Berkshire District Society. Wm. H. Tyler, *President.* Royal Fowler, *Vice President.* Robert Worthington, *Secretary.* Millen Sabin, *Treasurer, Librarian,* and *Cabinet-keeper.*

Hampshire District Society. Benjamin Barrett, *President.* Gardiner Dorrance, *Vice President.* Edward G. Ufford, *Secretary.* Charles A. Hall, *Treasurer.* Daniel Thompson, *Librarian.*

Southern District Society. Paul Spooner, *President.* John Perkins, Jason H. Archer, *Vice Presidents.* Samuel Sawyer, *Secretary.* William A. Gordon, *Treasurer* and *Librarian.*

Barnstable District Society. Joseph Sampson, *President.* Aaron Cornish, *Vice President.* Henry Tuck, *Secretary.* James B. Forsyth, *Treasurer.* Elijah W. Carpenter, *Librarian* and *Curator.*

Hampden District Society. Joseph H. Flint, *President* John Appleton, *Secretary.* James M. Smith, *Treasurer.* William A. Davis, *Librarian.*

Essex North District Society. [Charter granted October 6, 1841. Place of meeting, Bradford. Includes the towns of Amesbury, Andover, Boxford, Bradford, Georgetown, Haverhill, Methuen, Newbury, Newburyport, Rowley, Salisbury, and West Newbury.] Jonathan G. Johnson, *President.* Rufus Longley, *Vice President.* Isaac G. Braman, *Secretary.* Isaac Boyd, *Treasurer.* Jeremiah Spofford, *Librarian.*

APPENDIX.

1843.

PROCEEDINGS OF THE MASSACHUSETTS MEDICAL SOCIETY.

ANNUAL MEETING.

The Annual Meeting of the Massachusetts Medical Society was held on Wednesday, May 31st, at the Masonic Temple, Tremont Street, at 10 o'clock, A. M.

The records of the last meeting of the Society, and of the several meetings of the Counsellors were read.

The report of the Committee, appointed at the last meeting of the Counsellors, to ascertain and report at the next annual meeting of the Society, the number of Fellows then residing in each county, and within the limits of each District Medical Society, and the number of Counsellors to be elected in each, was read and accepted.

Letters were then read from the Secretaries of the Essex South, Hampshire, Southern, Hampden, and Essex North, District Medical Societies, stating the organization of the several Societies for the year 1843,—and nominating to the

Society the Fellows that had been selected for their Counsellors.

Voted, To proceed to the choice of Counsellors.

Drs. Willard, of Uxbridge, L. V. Bell, A. Thomas, G. W. Otis, Jr., and Dalton, of Lowell, were appointed Scrutineers.

The Scrutineers reported the following Fellows as having been elected Counsellors.

Essex Southern District Society. Drs. Andrew Nichols, Abel L. Peirson, Ebenezer Hunt, George Choate, Edward L. Coffin, Joseph Reynolds, Samuel Johnson.

Worcester District Society. Drs. Stephen Bachelder, John Green, Edward Flint, Benjamin F. Heywood, Charles W. Wilder, George Willard, John G. Metcalf, Pearson T. Kendall, Joseph Stone, William Workman.

Berkshire District Society. Drs. Henry H. Childs, Asa G. Welch, Royal Fowler, Robert Worthington.

Hampshire District Society. Drs. Benjamin Barrett, Addison S. Peck, Hervey Orcutt, E. G. Ufford.

Southern District Society. Drs. Paul Spooner, Alexander Read, Amory Glazier, Leroy M. Yale.

Barnstable District Society. Drs. Benjamin F. Seabury, Henry Tuck, John Harpur.

Hampden District Society. Drs. William Bridgman, David Bemis, Jehiel Abbott, James M. Smith.

Essex North District Society. Drs. George Cogswell, John Atkinson, Martin Root.

Franklin County. Drs. Alpheus F. Stone, Stephen W. Williams, Christopher Deane.

Middlesex County. Drs. Thomas Bucklin, Timothy Wellington, Zadok Howe, John C. Dalton, Josiah Bartlett, Anson Hooker, John O. Green, Nehemiah Cutter, Elisha Bartlett,

J. S. Hurd, C. F. Chaplin, Simon Whitney, Horatio Adams, Hiram Hosmer, Luther V. Bell.

Norfolk County. Drs. Nathaniel Miller, Robert Thaxter, Jeremy Stimpson, Ebenezer Alden, Ebenezer Stone, Henry Bartlett.

Nantucket County. Dr. Elisha P. Fearing.

Plymouth County (not included in District Society). Drs. Nathan Hayward, Ezekiel Thaxter, and Paul L. Nichols.

Suffolk County. Drs. George C. Shattuck, Jacob Bigelow, George Hayward, Enoch Hale, John Ware, S. D. Townsend, Z. B. Adams, John Homans, Woodbridge Strong, John Jeffries, G. W. Otis, Jr., Winslow Lewis, Jr., Samuel Morrill, J. V. C. Smith, D. H. Storer, John Flint, J. C. Hayden, J. D. Fisher, C. G. Putnam, J. B. S. Jackson, Alexander Thomas, Ephraim Buck.

The report of the Committee on the Library and Cabinet, was read and accepted.

The Treasurer submitted his annual reports.

The amount of expenses for the year is . .	$1813 94
The sums received amount to	1909 92
Balance in the hands of the Treasurer	$95 98

From the Report on the Permanent Fund, it appears that the whole is invested in the Massachusetts Hospital Life Insurance Company, and now amounts to $7921 88.

The Committee appointed to examine the books of the Treasurer, have attended to that duty, and report that the books are correctly kept, and the account is correctly cast and vouched. They have also examined the items of the Permanent Fund, and the amount is $7921 88.

(*Signed,*) C. G. PUTNAM,
ANSON HOOKER.

Voted, to accept the reports of the Treasurer, and that of the Auditing Committee.

A Committee, appointed at a previous meeting of the Counsellors, recommended at the October meeting that the following alterations in the By-laws be offered at their next annual meeting for their approval. That the last clause of the second section of the 35th By-law, beginning with the words "or at least," and also the 3d section of the 38th By-law be stricken from the By-laws. Also that in the 43d By-law, in the second paragraph, at the fourth line, the word "recording" be stricken out, and the word "corresponding" be inserted before the word "secretary."

Read and accepted.

The Committee appointed to report at the February meeting on the list of books to be required of candidates for an examination before the Censors, reported, That it be recommended to the Society that the 17th By-law be repealed.

Also that the last clause in the 35th By-law, beginning with the words "or at least," be repealed.

Also that the third section of the 38th By-law, beginning with the words "In every case," be repealed.

Read and accepted.

A substitute being thought necessary, by the Counsellors, for a part of the 17th By-law, Drs. Peirson, Jeffries, and Lewis, were appointed a committee to report one forthwith. This committee recommended to the Society that their fifteenth order be amended, by striking out all after the words "recording secretary," and adding the following, "by publishing the same in three newspapers, in three different counties within this Commonwealth."

Read and accepted.

The following resolve offered by Dr. Walker at their February meeting, That the committee on publications be hereafter selected in successive years, from such of the counties, in succession, of this Commonwealth, the Fellows in which, or through their counsellors, may not signify their desire to be excused from that service, was by a vote of the Counsellors recommended to the Society.

Read and indefinitely postponed.

The following resolve was offered by Dr. Fisher, That the Counsellors be requested to consider whether this Society may not effectively engage in a series of statistical and other investigations, which would be advantageous to Medical Science and Public Hygiene; and to report on the subject at the next annual meeting.

Voted, That it be referred to the Counsellors.

At 1 o'clock, the annual discourse was read by Dr. Wilder, of Leominster, on *The Causes, Symptoms, and Treatment of Consumption.*

On motion of Dr. Peirson, of Salem, it was voted that the thanks of the Society be presented to Dr. Wilder, for his highly interesting, and independent discourse.

Voted, To dissolve the meeting.

Attest, SAMUEL MORRILL, *Recording Secretary.*

The Fellows of the Society then proceeded to the hall over Worcester Railroad depot, opposite the United States Hotel, and dined together, to the number of two hundred and eighty-five.

Proceedings of the Counsellors.

OCTOBER MEETING, 1842.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at their room, Masonic Temple, Tremont St., on Wednesday October 5th, 1842, at 11 A. M.

The records of the last meeting were read.

The Corresponding Secretary reported the names of the gentlemen who had become Fellows of the Society since the last meeting of the Counsellors.

The committee appointed at the last meeting of the Counsellors to consider and report whether more convenient and permanent accommodations can be obtained for the use of the Society, have attended to this service, and respectfully report; The committee have not been able to find any room or rooms, offering decided advantages over those now used by the Society, and those which they have examined have been held at much higher rents than those now in use. The committee are not without the hope, that at some other time there may be more success in seeking the object proposed by the Counsellors, and they venture to recommend that when any rooms, apparently fitted for the purposes of the Society, may become known to any of the Counsellors, he should make the same known to the officers of the Society. Which is respectfully submitted by the Committee.

JAMES JACKSON,
For the Committee.

Accepted.

All further measures necessary to increase the light or warmth of the room now occupied by the Society, were re-

ferred to the Recording Secretary, with the advice of the President.

The committee appointed at the last meeting of the Counsellors to consider certain alterations of the By-laws to be proposed to the Society, offer the following resolution as their report.

Voted, That the Counsellors recommend to the Society, at their next annual meeting, to amend the By-laws as follows: That the last clause of the second section of the 35th By-law, beginning with the words "or at least," and also the third section of the 38th By-law, be stricken from the By-laws.

Also, That in the 43d By-law, in the second paragraph, at the fourth line, the word "Recording" be stricken out, and the word "Corresponding" be inserted before the word "Secretary."

JOHN JEFFRIES,
For the Committee.

Report accepted.

On motion of Dr. Hale, it was voted, that a committee be appointed to consider the expediency of adopting the third edition of the Pharmacopœia of the U. S., or of taking any other measures in regard to a Pharmacopœia for this Commonwealth.

Voted, That this committee consist of Drs. Bigelow, Hale, and Townsend.

On motion of Dr. Homans, it was voted that a committee of three be appointed to report on the subject of preparing a list of books required to be studied by medical and surgical pupils, previously to, and to qualify them for an examination before the Censors.

Voted, That this Committee consist of Drs. Bigelow, Ware, and Z. B. Adams.

FEBRUARY MEETING, 1843.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's rooms, Masonic Temple, Tremont St., on Wednesday, Feb. 1st, 1843, at 11 o'clock A. M.

The records of the last meeting were read.

The Corresponding Secretary reported the names of gentlemen who have become Fellows of the Society since the last meeting of the Counsellors.

The committee appointed to report on the list of books to be required of candidates for an examination before the Censors, beg leave to report, That it be recommended to the Society that the 17th By-law be repealed. Also that the last clause in the 35th By-law, beginning with the words, "or at least," be repealed. Also that the third section of the 38th By-law, beginning with the words "In every case," be repealed.

JACOB BIGELOW,
JOHN WARE,
Z. B. ADAMS.

Accepted.

A substitute being thought necessary for a part of the 17th By-law, a committee was appointed, to report one forthwith, consisting of Drs. Peirson, Jeffries, and Lewis.

This committee recommend to the Society that their fifteenth order be amended, by striking out all after the words "recording secretary," and adding the following, "by publishing the same in three newspapers, in three different counties within this Commonwealth."

A. L. PEIRSON,
For the Committee.

Dr. Hale, from the Committee on Publications, stated that the committee had met with some difficulty in fixing upon a book for the next volume of the Library of Practical Medicine. They were desirous of obtaining a very valuable work, which, from its size and expensiveness, would exceed the amount appropriated to a single year; but which might, if the Counsellors thought proper, be published in two volumes. The committee had therefore instructed him to offer the following resolution.

Voted, That the Committee on Publications be authorized, if in their judgment, the interests of the Society shall render it expedient, in connection with a volume of the Library of Practical Medicine for distribution at the next annual meeting, to contract for a further volume for the following year, provided the expense for each year shall not exceed $600.

While under consideration, the following resolve was offered by Dr. Walker.

That the Committee on Publications be hereafter selected in successive years, from such of the counties, in succession, of this Commonwealth, the Fellows in which, or through their Counsellors, may not signify their desire to be excused from that service.

This resolve conflicting with that of Dr. Hale, the former was laid on the table while Dr. Walker's proposition was under discussion. The vote on Dr. Walker's resolve was decided in the affirmative, and referred to the Society.

Dr. Hale's resolve, from the Committee on Publications, being again called up, was not accepted.

A resolution offered by Dr. Walker, after being amended as follows.

Voted, That a committee be selected to examine the code of By-laws of this Society, and to compare them with the laws of the Commonwealth and the charter of the corporation,

with a view to ascertain if there be any, and if any, which of said By-laws, which may either infringe the just rights of any portion or Fellow of the Society, be repugnant to the laws of the Commonwealth, or contravene the provisions of their charter, was accepted, and Drs. Walker, Peirson, and Adams of Waltham, were chosen a committee to report at an adjourned meeting.

Drs. Putnam and Hooker were appointed a committee to examine the Treasurer's accounts.

Drs. Flint and Morrill were appointed a committee to examine the Library and Cabinet.

Voted, That this meeting be adjourned to the first Wednesday of May next.

SAMUEL MORRILL, *Recording Secretary.*

ADJOURNED MEETING.

An adjourned meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's room, Masonic Temple, Tremont St., Wednesday, May 3d, 1843, at 11 o'clock A. M.

The records of the last meeting were read.

The committee appointed to examine the By-laws, on being called on for their report, stated that they had a meeting at the house of their chairman, Dr. Walker, and had a full and free discussion on various sections of the By-laws, which might be supposed to conflict with the charter, or the laws of the Commonwealth, but were unable to arrive at the same conclusion.

The majority of the committee, Drs. Peirson and Adams, made a verbal report, and during its discussion, a minority report was offered by Dr. Walker, which was fully discussed, but was not adopted.

The report of Drs. Peirson and Adams, stating they had attended to the duties assigned them, and begging leave to report progress and to be discharged from the further consideration of the subject, was accepted.

Drs. Townsend, Morrill, and Lewis, were appointed a committee to attend to the proper apportionment of Counsellors.

Voted, To dissolve the meeting.

SAMUEL MORRILL, *Recording Secretary.*

JUNE MEETING.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's room, Masonic Temple, Tremont St., on Thursday, June 1st, 1843, at 10 A. M.

The records of the last meeting having been read, the Corresponding Secretary reported the names of the gentlemen who have become Fellows of the Society, since the last stated meeting of the Counsellors.

Voted, To proceed to the choice of officers for the ensuing year.

Drs. Metcalf, of Mendon, and Hayden and Thomas, of Boston, were appointed Scrutineers.

The following gentlemen were elected to the several offices.

JACOB BIGELOW, *President;* ROBERT THAXTER, *Vice President;* SAMUEL MORRILL, *Corresponding Secretary;* D. HUMPHREYS STORER, *Recording Secretary;* WOODBRIDGE STRONG, *Treasurer;* CHARLES G. PUTNAM, *Librarian.*

CENSORS. *For the first Medical District, and the Society at large*, Drs. Z. B. Adams, John Jeffries, Anson Hooker, Winslow Lewis, Jr., George W. Otis, Jr.

Second Medical District, Drs. Benjamin F. Heywood, C. W. Wilder, William Workman, Benjamin Pond, Joseph Sargent.

Third Medical District, Drs. David Bemis, Gardiner Dorrance, E. E. Denniston, Addison S. Peck, Watson Loud.

Fourth Medical District, Drs. Henry H. Childs, R. Fowler, A. G. Welsh, R. Worthington, N. S. Babbit.

A communication was read from the Southern District Medical Society, requesting that a Board of Censors might be appointed by the Counsellors for that District—Whereupon it was

Voted, That a fifth Medical District be formed, of the Counties of Bristol, Plymouth, and Dukes, for the choice of Censors; that the Censors' meeting be held at New Bedford, on the second Wednesday in May.

Voted, That the chairman of the Censors now elected, be authorized to call a meeting of the Censors, at any time he may think proper, for organization.

The following gentlemen were elected Censors for this District.

Fifth Medical District, Drs. Alexander Read, Andrew Mackie, Samuel Sawyer, Amory Glazier, Joseph Haskell.

Drs. Hale, Homans, and Storer, were chosen Committee on Publications.

Drs. Strong, Lewis, and Otis, were chosen Committee on Resignations.

Dr. John Ware, of Boston, was chosen to deliver the address at the next annual meeting of the Society.

The report of the Censors for the first Medical District and for the Society at large, was read and referred to the Secretary of the said Board of Censors for revision, with the request that it be again presented at the next meeting of the Counsellors.

The Treasurer's report on the annual income and expenses of the Society, and on the state of the Permanent Fund, together with the report of the Auditing Committee, was read and accepted.

Voted, That the thanks of the Society be presented to Dr. Townsend, their late Corresponding Secretary, for the able and faithful manner in which he has discharged the duties of his office.

Voted, That the thanks of the Society be presented to Dr. Lewis, their late Librarian, for his faithful services.

Voted, That the twelfth and thirteenth volumes of the Library of Practical Medicine be furnished, by the Librarian, to the new members, for 75 cts. each.

Voted, That the Committee on Publications be authorized to select and publish a fourteenth volume of the Library of Practical Medicine, to be issued at the next annual meeting; one copy to each District Medical Society's Library, one copy to each retired member, and one copy to each Fellow of the Society who shall have paid his assessments to that time; and that the President of the Society be authorized to order the payment of not exceeding one half of the cost of said volume, before its full completion, in case it shall, in his judgment and in the judgment of the Committee, seem expedient to do so, *provided*, that the whole expense shall not exceed one thousand dollars.

Voted, That the Treasurer, with the concurrence of the President, shall, for the ensuing year, have the power to settle all accounts with delinquent Fellows whose debts are of more than four years standing, in any way deemed advisable by them.

Voted, That the Counsellors recommend to the Society to amend the By-laws, at the next annual meeting, by inserting the following words as the seventeenth By-law.

XVII. It shall be the duty of the Counsellors to act upon all matters referred to them by the Society, and in every case to report thereon to the Society at the next annual meeting. No "rule and order" of the Counsellors shall be in force until it shall have been sanctioned by a vote of the Society.

Drs. Fisher, Cogswell, and Ware, were appointed a Committee to consider and report upon the plan, proposed by Dr. Fisher (of the Society's "engaging in a series of statistical and other investigations"), at the next annual meeting.

Voted, That Drs. Strong, Hale, and Storer be a Committee to examine the Charter and By-laws of the Society, and inquire what are the relations to the Society of those Fellows, who, after having removed from the State, have returned and resumed practice therein.

The following gentlemen have been allowed to resign their fellowship:

John Walton, Pepperell, 1842; John Bartlett, Roxbury, 1842; Benjamin Skelton, Lowell, 1843; and being more than sixty years of age, they have become retired members.

Lewis S. Hopkins, Northampton, has also been permitted to resign fellowship, having relinquished practice.

Sir Benjamin C. Brodie, London, and J. Rhea Barton, Philadelphia, have been elected Honorary Members, both in 1842.

The following gentlemen have become Fellows of the Society:

By election. In 1842, A. Sumner Haskell, Deerfield; Milton Fuller, Medford; Joseph H. Hatch, Attleborough. George Wright, Montague, has also been elected, 1843, but has not yet signified acceptance of fellowship.

By signing By-laws in course. In 1842, Washington Shaw, Williamsburg; George Heaton, Boston; Rufus L. Hinckley, East-Boston; Amasa D. Bacon, Gloucester; Avery Williams, Lanesboro'; John B. King, Nantucket; William P. Dexter, Boston; Isaac Porter, Charlton; John H. Coggeshall, Marblehead; John Butterfield, Lowell; William P. Bonney, Fall River; William P. Morland, Boston; Peter S. Arnott, Pittsfield.

In 1843, William E. Coale, Boston; Joseph Hobbins, Brookline; G. Ware Gay, Boston; Richard U. Piper, Bos-

ton; Thomas Sparhawk, Dorchester; Hervey B. Wilbur, Lowell; George Hayward, Jr., Boston; Fitz-Edward Oliver, Boston; Joseph J. Jones, Boston; Horatio G. Morse, Roxbury; George N. Thomson, Boston; Elisha G. Tucker, Boston; Willard W. Codman, Boston; John George Rosenstein, Boston; Peter Renton, Boston; Edwin P. Grosvenor, Gloucester; Lucius H. Grosvenor, Reading; Israel H. Taylor, Pelham; S. D. Brooks, Norwich; Seth Fisk, Amherst; Henry S. Lee, Boston; Patrick Kearney, Boston; Ira Sampson, Dighton; Frederick Howard, Braintree; Wm. Auguste Frank, Boston; William Read, Lynn; Charles H. Allen, Cambridgeport; Edward Hall, Boston; Cyrus S. Mann, Boston; Johnson Gardner, Seekonk; Aurelius L. Weymouth, Salem; Samuel Cabot, Jr., Boston; S. A. Stanley, Bellingham.

Officers of the Massachusetts Medical Society.

ELECTED JUNE 1, 1843.

JACOB BIGELOW, *President.*

ROBERT THAXTER, *Vice President.*
SAMUEL MORRILL, *Corresponding Secretary.*
D. HUMPHREYS STORER, *Recording Secretary.*
WOODBRIDGE STRONG, *Treasurer.*
CHARLES G. PUTNAM, *Librarian.*

CENSORS. *For the Society at large, and the first Medical District,* Z. B. Adams, J. Jeffries, A. Hooker, W. Lewis, G. W. Otis.

For the second District, B. F. Heywood, C. W. Wilder, Wm. Workman, B. Pond, J. Sargent.

For the third District, D. Bemis, G. Dorrance, E. E. Denniston, A. S. Peck, W. Loud.

For the fourth District, H. H. Childs, R. Fowler, A. G. Welch, R. Worthington, N. S. Babbitt.

For the fifth District, A. Read, A. Mackie, S. Sawyer, A. Glazier, J. Haskell.

Committee on Publications, E. Hale, J. Homans, D. H. Storer.

Committee on Resignations, W. Strong, W. Lewis, Jr., G. W. Otis, Jr.

, John Ware, M. D., of Boston, is appointed to read the next annual discourse.

Officers of District Medical Societies.

Essex Southern District Society. Andrew Nichols, *President.* Abel L. Peirson, *Vice President.* George Choate, *Treasurer.* William P. Richardson, *Librarian.* William Mack, *Secretary.*

Worcester District Society. No return.

Berkshire District Society. No return.

Hampshire District Society. Gardiner Dorrance, *President.* Atherton Clark, *Vice President.* Edward G. Ufford, *Secretary.* Chauncey A. Hall, *Treasurer.* Daniel Thompson, *Librarian.*

Southern District Society. Paul Spooner, *President.* John Perkin, and Jason H. Archer, *Vice Presidents.* Samuel Sawyer, *Secretary.* William A. Gordon, *Treasurer* and *Librarian.*

Barnstable District Society. No return.

Hampden District Society. David Bemis, *President.* James M. Smith, *Treasurer.* William A. Davis, *Secretary* and *Librarian.*

Essex North District Society. Rufus Longley, *President.* John Atkinson, *Vice President.* Isaac G. Braman, *Secretary.* Isaac Boyd, *Treasurer.* Jeremiah Spofford, *Librarian.*

APPENDIX.

1844.

PROCEEDINGS OF THE MASSACHUSETTS MEDICAL SOCIETY.

ANNUAL MEETING.

The Annual Meeting of the Massachusetts Medical Society was held Wednesday, May 29th, at the Masonic Temple, Tremont street, at 10 o'clock, A. M.

The records of the last meeting of the Society, and of the several meetings of the Counsellors, were read.

The following report of the Committee, appointed at the last meeting of the Counsellors, to attend to the proper apportionment of Counsellors, was read and accepted:

The Essex Southern District Medical Society contains 58 members, which, divided by 8, gives 7 2-8 — 7 Counsellors.

Essex North District Medical Society, 23 members — 2 7-8 — 3 Counsellors.

Worcester District Medical Society, 79 members — 9 7-8 — 10 Counsellors.

Berkshire District Medical Society, 34 members — 4 2-8 — 4 Counsellors.

Hampshire District Medical Society, 29 members — 3 5-8 — 4 Counsellors.

Southern District Medical Society, 35 members — 4 3-8 — 4 Counsellors.

Barnstable District Medical Society, 22 members — 2 6-8 — 3 Counsellors.

Hampden District Medical Society, 30 members — 3 6-8 — 4 Counsellors.

Bristol County contains 13 Fellows, unconnected with the District Society — 1 5-8 — 2 Counsellors.

Franklin County, 20 Fellows — 2 4-8 — 3 Counsellors.

Nantucket County, 4 Fellows — 1 Counsellor.

Plymouth County contains 24 Fellows, unconnected with the Southern District Medical Society — 3 Counsellors.

Middlesex County, 115 — 14 3-4 — 14 Counsellors.

Norfolk County, 48 Fellows — 6 Counsellors.

Suffolk County, 185 Fellows — 23 Counsellors.

Whole number of Fellows, 709.

All which is respectfully submitted, by

S. D. TOWNSEND,
S. MORRILL,
WINSLOW LEWIS,
} *Committee.*

Letters were then read from the Secretaries of the Essex South, Essex North, Hampden, Southern, and Barnstable District Medical Societies, stating the organization of the several Societies, for the year 1844, — and nominating to the Society the Fellows who had been selected for their Counsellors.

Voted, To proceed to the choice of Counsellors.

Drs. Willard, of Uxbridge, Buck, of Boston, Howe, of Billerica, Bell, of Somerville, and Cogswell, of Bradford, were appointed Scrutineers.

The Scrutineers reported the following gentlemen as having been elected Counsellors:

Essex Southern District Society. Drs. Andrew Nichols, Abel L. Pierson, Ebenezer Hunt, George Choate, Joseph Reynolds, Samuel Johnson, Wm. Prescott, George Osborn.

Worcester District Society. Drs. Stephen Bachelder, John Green, Edward Flint, Benjamin F. Heywood, Charles W. Wilder, John G. Metcalf, Pearson T. Kendall, Joseph Stone, William Workman, D. S. C. H. Smith.

Berkshire District Society. Drs. Henry H. Childs, Asa G. Welch, Royal Fowler, Robert Worthington.

Hampshire District Society. Drs. Benjamin Barrett, Hervey Orcutt, Edward G. Ufford, Edward G. Denniston.

Southern District Society. Drs. Paul Spooner, Alexander Read, Amory Glazier, Leroy M. Yale, John Perkins.

Barnstable District Society. Drs. Benjamin F. Seabury, John Harpur, Elijah W. Carpenter.

Hampden District Society. Drs. William Bridgman, David Bemis, Jehiel Abbott, James M. Smith.

Essex North District Society. Drs. George Cogswell, John Atkinson, Martin Root.

Franklin County. Drs. Alpheus F. Stone, Stephen W. Williams, Christopher Deane.

Middlesex County. Drs. Timothy Wellington, Zadok Howe, John C. Dalton, Josiah Bartlett, Anson Hooker, John O. Green, Nehemiah Cutter, J. S. Hurd, C. F. Chaplin,

Simon Whitney, Horatio Adams, Hiram Hosmer, Luther V. Bell, J. M. Whittemore.

Norfolk County. Drs. Nathaniel Miller, Robert Thaxter, Jeremy Stimpson, Ebenezer Alden, Ebenezer Stone, Henry Bartlett.

Nantucket County. Dr. Elisha P. Fearing.

Plymouth County — (not included in District Society). — Drs. Ezekiel Thaxter, Paul L. Nichols, Winslow Warren.

Bristol County — (not included in District Society). Drs. Caleb Swan, Alfred Wood.

Suffolk County. Drs. George C. Shattuck, Jacob Bigelow, George Hayward, Enoch Hale, John Ware, S. D. Townsend, Z. B. Adams, John Homans, Woodbridge Strong, John Jeffries, G. W. Otis, Jr., Winslow Lewis, Jr., Samuel Morrill, J. V. C. Smith, D. H. Storer, John Flint, J. C. Hayden, John D. Fisher, Charles G. Putnam, James B. S. Jackson, Alexander Thomas, Ephraim Buck, A. A. Gould.

The report of the Committee appointed at the last meeting of the Counsellors, to examine the Library and Cabinet, was read and accepted.

The Treasurer's annual report was read and accepted; from which it appeared that the amount received into the Treasury during the year, ending May 28th, 1844,

was, - - - - - - - - -	$1,777 47
The amount of expenses, - - -	1,762 11
Leaving a balance of - - - -	$15 36

The amount of the Permanent Fund, which is invested in the Massachusetts Hospital Life Insurance Company, is $8,357 58.

The following report of the Auditing Committee was then read and accepted:

MASSACHUSETTS MEDICAL SOCIETY.

The Committee appointed to examine the Treasurer's accounts, have attended to the duty assigned to them, and respectfully report:

That the amount received into the Treasury, during the year, ending May 28, 1844, is - - - -		$1,777 47
From the following sources, viz.:		
Balance of last account, May 31, 1843, - - - -	$ 95 98	
Received at the annual meeting, 1843, - - - -	839 83	
Collected since, by the Treasurer and his collectors, - - -	457 08	
Collected and transmitted by the Treasurers of District Societies,	382 33	
Received from Librarian, for books sold to Fellows, - - -	2 25	
		$1,777 47

It thus appears that the sum of $1,679 24 has been paid by Fellows of the Society, during the year, viz.;

On old assessments, due prior to 1843, as nearly as the Committee can ascertain, - - -	$ 288 24	
For assessments due at the annual meeting, 1843, - - -	1,223 00	
For assessments, in advance, for 1844, - - - - -	168 00	
		$1,679 24

The expenditures have been as follows:

For rent, - - - - - -	$ 125 00
For the annual dinner, 1843, - - -	376 25
For printing the annual Discourse and Proceedings, - - - - - - - -	108 25
For the Library of Practical Medicine, Vol. XIV,	1,035 00
For printing and distributing Address of Committee on Statistics, - - - -	31 89
For advertising, - - - - -	35 97
For other contingencies, - - - -	49 75
	$1,762 11
Leaving a balance due from the Treasurer, of	$15 36

The Committee are of opinion that the sum expended for advertising is too large. They are aware that the acts of incorporation require the publication of a considerable number of advertisements; but they believe that all the advertising that the law demands, or that will be useful, may be effected, with a material saving of expense, by a careful attention to the number of insertions. The expenses of collecting the assessments are not included in the above statement of expenditures, but are deducted from the payments of Fellows, before the amount is credited in the Treasurer's accounts.

The Committee have also attended to the other duty referred to them, and have, as far as they were able, examined the accounts of the Fellows. From this examination it appears, that of the 709 Fellows belonging to the Society, May 31, 1843,—458 have paid the assessment for the year, amounting to - - $1,374 00

33 have paid (besides payments on notes, previously given), on account of old assessments, - -	203 00	
56 have paid in advance, for 1844,	168 00	
		$1,745 00

There stands charged on the Treasurer's book, as due, prior to the assessment of 1844, from 224 Fellows, the sum of $2580. A large proportion of this amount purports to be due from a small number, in large sums. There are 37 Fellows who owe, each, six or more assessments, amounting together, to $1372, — 53 who owe two or three, each, and 84 who owe, each, but one. Most of those who appear to be delinquent in the smaller sums, are probably so from inattention, and will, doubtless, pay when called upon. The Committee are of opinion that more effectual measures ought to be devised to effect the settlement of the larger accounts, and to prevent their accumulation in future. It has always been, and, the Committee trust, it always will be, the practice of the Society to treat with great indulgence every member who has become unable to pay his annual dues. But so much ought, surely, to be expected from each individual, as that he should attend to his account before the amount becomes so large as to exceed his ability, or, at least, if unable to pay, to ask from the Counsellors the indulgence, which they have been sufficiently ready to grant, whenever it was truly required.

The returns of the Treasurers of the several District Societies exhibit the following results:

SOCIETIES.	No. of members as reported to the Soc., May 31, 1843.	No. who paid assessment of 1843.	Amount for 1843.	Number of members delinquent.	Amount due.
Essex Southern District, - - -	55	31	$ 93 00	18	$150 00
Worcester, " - - -	83	35	105 00	43	359 00
Berkshire, " - - -	34	6	18 00	23	137 00
Hampshire, " - - -	31	11	33 00	15	72 00
Southern, " - - -	34	31	93 00	3	39 00
Barnstable, " - - -	21	15	45 00	3	12 00
Hampden, " - - -	29	9	27 00	19	294 00
Essex North, " - - -	25	12	36 00	15	84 00

The Committee cannot but express their satisfaction at the returns from the Barnstable and the Southern District Societies. They both were made in good time, before the end of the year 1843; and each returns only three delinquent members. Those in Barnstable, and two of those in the Southern District, appear to have been delinquent only from accident, and for very small amounts; and the other has met with reverses, which, together with his advanced age, present a strong claim to the indulgent consideration of the Counsellors. How much, both of trouble and of discontent, would be saved, if all the Fellows of the Society were as punctual, and all its officers as efficient, as those of these two Districts have been, the past year.

The Committee have also examined the certificates of deposit in the office of the Massachusetts Hospital Life Insurance Company, and find that the amount of the Permanent Fund, with interest to Jan. 1, 1844, is eight thousand, three hundred and fifty-seven dollars and fifty-eight cents.

All which is respectfully submitted,

ENOCH HALE,
EPHRAIM BUCK, } *Committee.*

Voted, That the By-Laws be amended, by inserting the following words as the 17th By-Law:

"XVII. It shall be the duty of the Counsellors to act upon all matters referred to them by the Society, and in every case to report thereon to the Society at the next annual meeting. No 'rule and order' of the Counsellors shall be in force until it shall have been sanctioned by a vote of the Society."

The Committee appointed at the last meeting of the Counsellors, to bring the subject of engaging in a series of statistical investigations before the Society, and of devising plans

and means to carry the matter into execution, presented the following report, which was accepted:

To the President of the Massachusetts Medical Society,—

Sir: The Committee appointed, in February last, to lay before the Society the subject of an investigation into the Vital Statistics of this State, beg leave to REPORT:

That, in pursuance of their object, they addressed the enclosed Circular to all the members of the Society. In addition to this, they addressed a number of private letters to different medical gentlemen, residing in various parts of the Commonwealth, known for their devotion to the cause of science, and favorably situated for the observation of the health of certain well-marked portions of our community. These letters, which were intended to embrace in their range a representation of the agricultural, manufacturing and sea-board population, have been received with cordial attention, and called forth a number of valuable answers.

It results, from the examination of these papers, that there exist remarkable differences in the length of life, and in the prevalence of certain diseases, in the various localities and classes of population which have been examined.

At the same time, the few returns received have been useful, rather in demonstrating the very great interest and importance which would attach to an extended investigation of these facts, than by affording any considerable number of definite conclusions. Their limited number hardly allowed any anticipations of such broad results.

In view of these objects, and encouraged by the reception their labors have met with in this preliminary stage, the Committee would urge upon the Society the duty of a general and hearty co-operation of each individual member in the task of accumulating those primary facts which are within

the reach of all observers. Unimportant as they may seem, when isolated from each other, they involve the most momentous truths, which rise spontaneously, as it were, to their surface when they are united in considerable masses.

Respectfully,

JOHN D. FISHER,
EDWARD JARVIS,
O. W. HOLMES,
} *Committee.*

ADDRESS TO THE MEMBERS OF THE MASSACHUSETTS MEDICAL SOCIETY.

At the annual meeting of the Society, on the 31st of May, 1843, a resolution, relative to the registration of diseases and their co-existing circumstances and results, was adopted, and the whole subject of consideration and action referred to the Counsellors.

At the meeting of the Counsellors, on the 1st of June following, they appointed a committee, consisting of Drs. John D. Fisher, of Boston, George Cogswell, of Bradford, and John Ware, of Boston, "to consider and report upon the plan proposed by Dr. Fisher, (of the Society's engaging in a series of statistical and other investigations,) at the next annual meeting."

At the February meeting of the Counsellors, the Committee made the following Report:

To the Counsellors of the Massachusetts Medical Society,—

GENTLEMEN:

The Committee appointed by you in June, 1843, to consider the resolve adopted by the Society at its last annual meeting and referred to the Counsellors, in the following words, "that the Counsellors be requested to consider whether this Society may not effectively engage in a series of sta-

tistical and other investigations, which would be advantageous to Medical Science and Public Hygiène," have considered the subject, and ask leave to offer the following

REPORT:

The Massachusetts Medical Society was organized, and entered upon its labors, in 1781. In accepting its charter, it acknowledged "that health is essentially necessary to the happiness of society," and at the same time assumed an obligation to promote it, in its associate capacity, by all the means in its power.

Has this obligation been fully redeemed? Your Committee feel an honest pride in contemplating the results, which the Society has accomplished. It has elevated the standard of medical education, promoted the progress of medical science, and been the means of providing the people of the State with a class of intelligent and accomplished medical advisers, worthy of their highest regards, and into whose hands they may safely entrust their lives, when in peril from disease.

A part, then, of the object of its organization, has been accomplished by the Society; but, in the opinion of your Committee, its whole obligation has not yet been cancelled. In their collective and in their individual capacity, the members of the Society have devoted their powers mainly to the study of the nature and cure of diseases; while to the investigation of the agents which produce disease, or, in other words, the study of their prevention, they have not, at least in their associated capacity, done any thing worthy of the importance of the subject, or of the profession.

It was to direct the attention of the Society to this great object, that the resolution under consideration was submitted to it at its last meeting. In the whole range of medical inquiry, there is no one, which, in the opinion of your Com-

mittee, equals it in importance, and no one, in the investiga tion of which, the Society can engage with equal facility, or with the prospect of so much advantage to medical science, and to the welfare of the community. The subject is a vast one. It comprises a consideration of all the agents, moral, material and social, which affect the vitality of our organization. But it is one which the members of the Society can do much to exhaust, and the extent of the undertaking should rather prove a spur to their ambition, than its difficulty be allowed to deter them from its investigation.

In regard to the pathology and treatment of disease, neither the physicians of this State, nor country, can expect, for the want of extensive fields of observation, to rival their European brethren. But there is a vast field, as yet comparatively unexplored by the latter, and for the examination of which the American physician is peculiarly qualified, — the causes of disease. In a country of such recent exploration, and especially to us whose State is so regularly divided, it would be an easy matter, in our associated capacity, to accomplish a most important work in this respect, not merely for ourselves, but for future generations, the influence of which will be felt in the increase of the health of the public. The question then resolves itself into this, — are we willing to direct our investigations to the causes of disease, and, by so doing, remove the obstacles to health, and prolong the life of the individual?

In order to approximate the causes of disease, and to ascertain the value of human life, it will be necessary to investigate all those circumstances which can have any influence in the production of disease, in the impairing or shortening of life, as well as to examine the quantity, character and issue of disease, the season of the year, and the period of life at which it may occur.

For these general purposes it will be necessary to learn specifically the physical character, and the topography of every district and town; its elevation, soil, relation to running, quiet or stagnant waters; to ponds, rivers, or the sea; to swamps, low meadows, or forests; its exposure to winds, or its protection from them.

It is also important to know the density of the population, in order to determine how far this has any effect in the production, continuance, or fatality of disease; whether cities, villages, or sparse districts are more favorable to health. In order to compare the amount or proportion of sickness in one place or occupation with that in another, the absolute sum of population resident in any district, or engaged in any trade or profession, among which a definite quantity of disease may be found, must be correctly ascertained.

It is commonly supposed that those residing in cities are less disposed to certain diseases, and more so to others, than those living in the country; also, that the various occupations exert an influence equally distinct in its character upon the different forms of disease. But we want sufficiently minute and extensive data to determine these questions satisfactorily.

Health is affected by the character and habits of the people; how far, and in what manner these exert an influence, yet remains to be determined. The habits of each patient must, therefore, be inquired into, — whether he be temperate or intemperate; laborious or sedentary; active or inactive; comfortably clad, housed and nourished, or in a state of suffering and want.

The domestic and social condition of the family must also be known; the means it possesses of sustaining life; the intelligence and education of the adult patients, or of those who have the direction of the children.

Having first determined these facts and circumstances, it is next desirable to ascertain the quantity of disease, the specific

disorders, their duration and termination in recovery or death; and also how many are valetudinarians, who are leading an imperfect life.

These investigations will show us how much life there ought to be, how that life is distributed, and how much it is impaired and curtailed. We shall then be able to compare the desired with the actual duration and quantity of life. We shall also learn through the lesions of what organs, or through the derangement or failure of what functions, life is diminished or extinguished; and lastly, amid what circumstances these disorders and deaths happen. Thus shall we be led toward the causes of disease and mortality.

We have ceased to believe that diseases come from any mysterious cause, from a capricious Providence, or the general judgments of Heaven, and acknowledge that they have their origin in the influence of the elements, in our constitutions and habits, in the use we make of our organs and functions.

We have no philosophy to determine, *a priori*, the effect of these various circumstances and materials upon health and longevity; we must, therefore, compare men and their ailments in one set of circumstances with them in another; and if, from wide fields of observation, we find a permanent difference between them, we may suppose there must be in or about those differing circumstances a variation of causes adequate to account for the differences of ailment. If, for example, in the districts near the sea-coast we find more consumption and other pulmonary disorder, in proportion to the population, than in the country west of the highlands in Worcester county, where the east winds do not prevail, we may infer that these winds, or other causes connected with the vicinity of the ocean, may have had some influence in the production of disease in the lungs.

The surface of Massachusetts is much diversified; some of it is low and borders upon wide meadows, which are mostly wet; some of it is elevated several hundred feet above the

level of the ocean. The valley of the Concord river, from its source to its mouth, is low and flat; the stream is sluggish, with so little fall that its freshets run off very slowly. It is skirted by extensive wet meadows through Framingham, Wayland, Sudbury, Concord, Carlisle, Bedford and Billerica, which it overflows always in the spring, and often in the summer and autumn, and on slowly falling, it leaves a large surface of wet soil, from which watery vapor and the emanations of decayed vegetation must be continually rising. The neighboring lands are not much raised above these meadows, and are covered with a great population. The fogs from these low grounds and the river reach all the vicinity, and create a marked difference in the temperature of the atmosphere. It is desirable to ascertain whether there are more pulmonary diseases, fevers, or rheumatisms among the inhabitants of this valley, exposed to these fogs and miasmata, than among those occupying the higher grounds of the north and centre of Worcester county.

Our knowledge with regard to the influence of trades upon health, rests almost entirely upon conjecture. The second Report to the Legislature of Massachusetts upon Births, Deaths and Marriages, states, that the average life of thirty-five blacksmiths, who died during the last year, was fifty-nine years; that of ninety-nine carpenters and one hundred and eighteen shoemakers, each forty-eight years; while seven hundred and three farmers enjoyed a life of sixty-five years. The duration of life in carpenters, who work abroad and have active exercise, when compared with that of shoemakers, who sit and live in close rooms, certainly differs from our common notion of the effect of those trades upon health, and a more extensive observation may show that the popular opinion is correct. It may be that the difference of mortality of men in various pursuits is not so much owing to their occupation as to their domestic condition.

There is reason to believe that there is a great difference in the value of life in the different conditions of society.

The Report of the Poor Law Commissioners upon the sanitary condition of the laboring classes of England and Wales, shows, that while the families of gentlemen, merchants and professional men, average a life, in different places, of from 35 to 50 years; laborers, operatives, mechanics, servants, and others similarly situated, also their wives and children, average a life of only 15 to 35 years, in various places. This difference of the value of life is not confined to England and Wales. We have obtained an analysis of the ages, and also of the domestic and social condition of 1767 persons, who have died in Dorchester within the last 27 years. By this it appears that the average duration of life in the families (including father, mother and children) of laborers, fishermen, journeymen mechanics and factory operatives,

was - - - - - - - - 27 yrs. 5 mos.
Mechanics who carry on business on their own account, - - - - - - 29 " 6 "
Merchants, capitalists, professional and salary men, amateur farmers, - - - 33 " 2 "
Farmers who own and cultivate their lands, 45 " 8 "

This difference is not chargeable to the occupations merely, for it was found the most among the little children at their homes, as will be seen in the following table.

PERIODS OF LIFE AT WHICH DEATH TOOK PLACE.	NUMBER OF PERSONS DYING IN THE FAMILIES OF				
	Laborers, &c.	Mechanics	Merchants, &c.	Farmers.	Total.
Under 2 years, - -	161	115	127	33	436
" 5 " - -	203	148	172	50	573
" 20 " - -	244	191	235	63	733
" 70 " - -	462	351	499	191	1503
Over 70 " - -	51	50	90	73	264

PROPORTION OF DEATHS AT EACH PERIOD TO ONE THOUSAND IN EACH CLASS.

PERIODS.	Laborers, &c.	Mechanics	Merchants, &c	Farmers	Total.
Under 2 years, - -	313	286	215	124	246
" 5 " - -	395	368	292	188	324
" 20 " - -	474	476	398	237	410
" 70 " - -	901	875	847	735	850
Over 70 " - -	99	124	152	274	149

This great difference of mortality between the children of the poor and of the comfortable farmer, cannot be caused by the employment of the head of the family. There must be a cause or causes connected with the domestic condition or management, to produce this discrepancy. But it is yet a question to be resolved by farther and wider observation, whether this, although a general fact in England and Wales, is here more than a particular fact in regard to Dorchester. A similar analysis must, therefore, be obtained of the mortality of many towns, in all parts of the State, in order to determine whether life is meted out in such various proportions to the different classes of society throughout the Commonwealth.

A decided influence is exerted upon the health and life by the moral character; yet there are no data to determine how much, or in what way this operates. The opponents of intemperance talk vaguely and largely of the effects of this vicious indulgence upon the health; but they differ widely from each other, because they have no well-digested system of facts to build their theories upon. We have but one observation, and that a limited one, taken by a physician in the course of two years, over about six hundred people in a country town of this State. They were persons whose habits were known to him, and during the period of his observations they were under his sole professional care. He kept a careful record of all their attacks and of the duration of their diseases, and compared the number of days the intemperate were sick with those of the abstemious. He ascertained that the former were sick and required his attendance fourteen per cent. each, on an average, more than the latter; i. e., while the temperate were sick 100 days, the same number of the intemperate were sick 114 days. This is a valuable observation, so far as it goes; it shows that the alcoholic temperament or habit probably caused all the excess of disease of one class over the other. But some very important facts were not observed, on account of the limited field of

observation. The differences of fatality of similar diseases in these two classes, and of the average duration of life, may be and probably are greater than that of the quantity of actual disease; but a still greater difference, it is believed, would be revealed in the infirmities, in the broken constitution and impaired lives of the intemperate.

The value of education, of intellectual culture, as a protector of health, is conjectured, but not determined. In the instances already quoted, of the greater mortality among the poor in England and Dorchester, it may be that their want of education, of a knowledge of all the circumstances affecting their lives, of a quickened intellect, that readily perceives danger, and finds means to avoid it; that sees remote consequences, and therefore in self-management and in family government lays no foundation of disease, — it may be that the want of this information is to them as much the cause of disease and death as their want of the comforts of living. By the report of the deaths of England, in 1841, it appears that the mortality among children, under one year old, ranged from about seventeen per cent. of all that died in some of the most intelligent agricultural counties of Devonshire, Dorset, Cumberland, Westmoreland, and parts of Lancaster and Northumberland, to twenty-nine per cent. in the mining parts of Staffordshire, where the greatest general ignorance prevails. If this analysis had gone minutely into families, as we can carry it here in Massachusetts, instead of including all, the learned and the ignorant, the rich and the poor families of one district in one class, it would have shown a more terrible difference of mortality among the infants in the different walks of life.

These reports of deaths, which your Committee propose to have made by each member, will show only one portion, and that, perhaps, the worst portion, of the effects of locality, occupations, habits and circumstances on human vitality.

There is yet another tax upon life, in the whole sum and detail of curable disease. This may originate in similar

causes to that which is more destructive; it remains, therefore, to determine the amount of this, its characters, location, seasons and attendant circumstances, in order to ascertain the extent of the attenuation, as well as the shortening of life.

It is admitted that some diseases prevail more in some localities than in others; but this is rather a matter of general opinion than of positive demonstration. We know that some persons predisposed to asthma, suffer from the development of that disease, while they reside near the sea-coast, but are entirely free from all its symptoms, while they reside in the valley of the Connecticut river, buried deep in the mountains. Is this a general law as to these two localities, or is it merely confined to the instances which happened to come within our knowledge? Is asthma as frequent in the Connecticut valley as it is on the coast? The returns of deaths to the Secretary of State, for the last two years, give fifteen cases of this disorder, of which one was in Worcester county; all the others were in the eastern counties; none were west of the highlands.

Typhoid fever has prevailed very extensively and epidemically in the low grounds of Concord for the last five months, from September to January: it was there mild in its course and safe in its issue. It also prevailed in the high lands of Sunderland and Montague twelve years ago: it was there severe and frequently fatal. As these epidemics were nearly similar in their attack and progress, it is desirable to know if there were a similar cause, independent of the situations, which differed widely from each other. These epidemics have not appeared in these places in other years, as they did in the years herein specified; the cause or causes of this disease must, then, have been temporary, as well as local, and our investigations will be narrowed down to the places and the times, when and wherein these diseases have appeared. We desire to learn the circumstances which were peculiar to these times and places, as regards others, yet

were common and alike to them, among which will probably be found the predisposing or exciting causes of this epidemic.

If diseases have a local origin, we have, so far, a means of prevention; or, if too late for this, perhaps of cure, in the removal of the patient from the cause, or the cause from the patient. If they originate in any trades, occupations, habits, customs, indulgences, or exposures, the means of prevention are not less in our hands.

Knowing, then, the effects of localities, seasons, employments and customs, upon the human constitution, not only in its perfect state, but in every variety of defective organization, we have the means of removing from the world a large part, if not the most, of its ailments.

In point of philanthropy and general economy, it is always important to the public that this knowledge of the prevalence and extent of diseases should be gathered, concentrated and distributed to the people. But in some cases it becomes especially important in point of political economy. When, in the year 1829, the Legislature of Massachusetts proposed to establish the Lunatic Hospital, they were in want of data to determine the general ground of action. They wanted to know how many insane there were in the State; how many were dangerous; how many curable; how many would be benefited by hospital treatment. But no one could give them this information. A tale of woe had gone up from the prison-houses of the suffering lunatics, and had reached the ears of the legislators in the State House, imploring them for relief. When, at length, they determined to do something, they neither consulted the Massachusetts Medical Society as to the extent or degree of the suffering to be relieved, nor asked of physicians what course was the best to be pursued. For the Medical Society had not the knowledge to give; they had taken no observations of the prevalence of insanity, nor of the condition of the sufferers. The government, then,

instead of asking this body of scientific men, or sending to the physicians individually, sent their circulars to the overseers of the poor, to the civil authorities, who only recognize insanity as a matter to be fed, supported, or restrained. Upon the data thus obtained, they have made a permanent investment of nearly $150,000, and have an establishment at an annual cost of near $30,000.

The last census of the United States attempted to make some contributions to statistical nosology; but it contains statements in regard to the prevalence of insanity among the colored population of the free States so palpably and so grossly erroneous, that the most superficial observer would reject them. Yet these have been published and sent forth to the world, under the authority of the national government, and reprinted by our medical and political journals, and even again published abroad, as proofs of the liability of the colored man, in a state of freedom, to mental derangement. According to this calculation, every forty-third negro in Massachusetts, and every fourteenth negro in Maine, is a lunatic, and we have no data to refute the error. Fortunately, the document itself supplied the means of its own refutation, in regard to the lunacy of the negro; still, there may be errors equally certain, if not equally palpable, in regard to the insanity of the whites. The Medical Society can determine the truth of this matter, and whether the general opinion be correct, that we in the United States, and in New England especially, have positively a greater proportion of insanity than any other nation or country is supposed to have; and whether a high state of general education, an active and enterprising habit of a people, are prejudicial to mental soundness, more than the lethargy of the masses in Europe.

The members of this Medical Society have not only the duty of healing to perform, by which they obtain for themselves honor and profit, but they have the work of prevention,

also, by which they may do the greatest amount of good to their fellow-men. They owe it to the world and to medical science, to learn, as far as possible, the vital worth of every place, occupation and circumstance, as others learn their pecuniary value, and publish this abroad, so that men may avail themselves of the best means to obtain a fulness and a length of life.

They are happily situated for this undertaking. Implanted as they are in every district and corner of the State, — in towns of limited extent and well-defined by geographical boundaries, — and residing among an intelligent people, who are ever alive to whatever may interest their individual well-being; with whose condition, character and relations to circumstances affecting health they are familiar, the members of this Society have the means of ascertaining almost the whole amount, kind, and degree of disease, as well as the times, circumstances and causes of almost all the mortality within this Commonwealth. There is, then, a responsibility for the use of these means, and for accomplishing this good, resting upon this Society, which ought to be considered, and which cannot be thrown upon the people, nor upon the government.

For these reasons, and with these facilities, your Committee propose, that the Medical Society proceed at once to the investigation of the nosology and mortality of Massachusetts, and invite the co-operation of each one of its members to carry on the work.

Your Committee propose, that a series of tables and questions be printed, and sent to each one of its members, respecting the topography and meteorology of every place; the characters and condition of the people; the kinds, amounts, and issue of disease; the causes of mortality, and duration of life.

That a printed system of nosology be sent to each Fellow, and that all returns of disease be made corresponding to it.

That each Fellow not only give answers to the queries respecting the topography of his town and district in general

terms, but that he also describe the sanitary condition of the residence of the patient, the time he has lived in it, his habits, occupation, &c.

That each Fellow make annual returns of these observations, by mail, to such committee or officers as the Counsellors may appoint to receive them.

That this committee or officers digest all these returns into one system, and print the results in a tabular form, with such descriptions and annotations as may be suggested or supplied to them, and distribute the volume, when printed, to the Fellows of the Society.

All which is respectfully submitted.

JOHN D. FISHER, *Chairman.*

This report was read and accepted; and Dr. Fisher, of Boston, Dr. Jarvis, of Dorchester, and Dr. Holmes, of Boston, were appointed a Committee to lay the whole subject before the members of the Society, and to devise plans and means to carry the matter into execution.

In order to carry out the purposes of the Society, in this statistical investigation, it is desirable to secure the co-operation of every member.

It is proposed to obtain an accurate description of the topography, and of the physical and moral condition of the people of every place, in order to ascertain the endemic and other influences upon the health of the inhabitants.

It is also proposed that each physician should keep an exact record of each case, at least of the points which will be specified in the plan which accompanies this report. The date, name of patient, sex, color, place of birth, age, domestic condition, whether single, married or widowed, occupation, relation to occupation, site of residence, years of residence in that place, habits as to temperance, disease, duration of disease, termination, should be recorded and reported. As to the occupation, it is desirable to ascertain, not only the occupation of adult males, who may be sick, but also that of

the head of every family, in which there may be sickness of the wife or children. Under this head wives will be classed with their husbands; minor children who live with their parents will be classed with them; unmarried females, if they have any especial occupation, will be so designated; if not, and they live at service in other families, they will be designated as laborers. If not at service, nor in any especial occupation, and they retain the social position of their parents, they will be so designated. Thus the unmarried daughters of farmers, shoemakers, physicians, &c., while they live at home, or with friends, or are self-dependent, will be classed as farmers, shoemakers, physicians, &c.; but if at service, they will be classed with the laborers. Apprentices, clerks, students, will be classed according to their employment. Factory operatives will be classed as operatives; but it is desirable that the kind of factory, cotton, wool, nail, &c., and the especial occupation, as carder, spinner, &c., be stated.

It is desirable to know the relation of each person, or head of family, to his employment. Whether he be an under-worker, as a journeyman, or carry on his trade on his own account. Whether he be a farmer, managing his farm, or a laborer, working for another.

As to the site of the residence, having first obtained the topographical description of the town, it will be easy, first to refer the particular situation of each individual to this, and then state whether the site of the dwelling be dry or wet, low or elevated.

As to habits, it is desirable, in addition to temperance and intemperance, to know whether the individuals were inactive, industrious, or over-laborious.

It is desirable that the topographical descriptions should be full and perfect, at first, and when this shall be once given, it need not be repeated, unless changes take place in the physical character of the town.

The following questions occur to your Committee as proper, in all cases, to be answered; but it is requested that

the members of the Society would add such other information as may seem to them to throw any light on the endemic influences of the town, or lead to the causes of disease:

What is the size of your town or city, in square miles or acres?

What are the general features of its surface? Hills—their height and extent? Plains—their extent? The general elevation of the town above tide-waters?

Forests? waste and cultivated lands? their extent?

Number, size and direction of rivers and running streams? Are they rapid or sluggish? Have they falls? used for mills? Are they overflowed and drawn off alternately for mechanical or other purposes? Do they overflow their banks to any extent, and leave, on subsiding, upon the surface, a muddy deposit for exhalation and evaporation?

Are there ponds which are stagnant? and how large? Extent of low meadows and swamps? Are there sources of miasmata?

Are the residences of the people nearly on a level with these, or within reach of the fogs connected with them? or exhalations from them?

General character of the soil and the sub-soil?

Agricultural productions?

In regard to Meteorology, observations should be made in a register, on the following points:

1. The temperature of each day, as measured by uniform thermometers.

2. The varying pressure of the atmosphere, measured by uniform barometers.

3. The amount of rain that falls, measured by uniform rain-gages.

4. The number of fair—cloudy—stormy days.

5. The direction, &c., of the winds.

In regard to the civil and social condition of the citizens, the following circumstances should be referred to, viz.:

1. The amount of population of the town.

2. Their general character for intelligence—habits—morals—industrious—economical, and pecuniary condition.

3. The number of families employed in different occupations.

4. The insane—blind—deaf mutes.

In order to carry out the plan we have in view, and to render the knowledge of diseases and of the causes of death valuable to science, and available for the elucidation of hygiène, a uniform plan of designating each disease must be adopted.

"A uniform nomenclature is of as much importance in this department of inquiry, as weights and measures are in the physical sciences." The adoption of such an one must be a preliminary step by the Society, and its subsequent use by the members an essential requisite in their records and reports.

After devoting much attention to this subject, and examining the various plans of registration of diseases and causes of death, no one has appeared to the Committee so perfect and so well adapted to our purposes, as the one prepared by Dr. Farr, and used in England by the Registrar-General in his reports. It is simple and comprehensive.

The members of the Society are requested to use this in their records and their reports of diseases and deaths.

It is requested, that these returns should include the observations and experience of an entire year, commencing the first day of January, and ending the thirty-first day of December; except, however, the returns for 1844, which must include only the six months following the first day of July.

The returns should be made out according to the formula, which is included in this report, and include notices of all the topics therein specified, and such other observations or suggestions as may occur to any member of the Society. These should be sent, by mail or otherwise, in the months of January or February, to the Secretary of the Medical Society, who will deliver them to the Committee of Registration.

JOHN D. FISHER,
EDWARD JARVIS, } *Committee.*
O. W. HOLMES,

Boston, March, 1844.

REGISTER OF DEATHS in the Town of County of and State of Massachusetts, for 1844.

Duration of Disease in hours, days or years.	
Disease, or cause of death.	
Habits. Abstemious or Intemperate.	
Was he employed for wages, or did he work on his own account, or for a salary.	
Years of residence in that place.	
Site of residence, whether dry or moist; near stagnant water.	
Years engaged in occupation.	
Occupation; (do. of parent, if the deceased be a child.)	
Single, married or widowed.	
Place of Birth.	
Color.	
Sex.	
Age.	
Date of Death.	
NAME.	
Number.	

NOTE.—The name of the individual, also the sex,—condition, whether single, married or widowed; and habits, whether abstemious or intemperate, may be indicated by initials.

REGISTER OF DISEASES in the Town of or within the observations of the Subscriber.

Termination, recovery, death or unchanged.	
Duration of Disease.	
Disease.	
Habits. Abstemious or Intemperate.	
Years of residence in that place.	
Site of residence dry or moist? near stagnant waters?	
Is the head of the family employed for wages, or does he work on his own account, or for a salary?	
Occupation of the head of the family.	
Single, married or widowed.	
Place of Birth.	
Age.	
Color.	
Sex.	
NAME.	
Number.	

The following resolutions were read by Dr. Bartlett, of Concord, and, after some discussion, were accepted:

"Whereas, great and glaring mistakes respecting the prevalence of insanity among the colored population exists in the late census of the United States, and the same has been republished in various ways, both in America and in Europe, and

"Whereas, it is the duty of all medical men, and especially of this Society, which in its 750 members, comprises the majority of the physicians, practising in this Commonwealth, to not only spread truth, but to guard against any errors in respect to the prevalence of disease in the community,—therefore,

"*Resolved*, This Society should protest against the errors of that census, in this respect, and should memorialize Congress, making a statement of the facts, as they are in this State, and asking that the errors should be corrected.

"*Resolved*, That the Counsellors be requested to take this into consideration, and to prepare such a memorial, to be presented to both houses of Congress during the present year."

At one o'clock the Annual Discourse was read by Dr. Homans, of Boston, on "The Character and Qualifications of the Good Physician."

On motion of Dr. Ware, it was

Voted, That the thanks of the Society be presented to Dr. Homans, for his comprehensive, interesting and valuable Discourse.

Voted, To dissolve the meeting.

D. HUMPHREYS STORER,

Recording Secretary.

The Fellows of the Society then proceeded to the hall over the Worcester Railroad Depot, opposite the U. S. Hotel, and dined together, to the number of 325.

Proceedings of the Counsellors.

OCTOBER MEETING, 1843.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's room, Masonic Temple, Tremont St., on Wednesday, October 4th, 1843, at 10 o'clock, A. M.

The records of the last meeting were read.

The Corresponding Secretary reported the names of the gentlemen who had become Fellows of the Society since its last stated meeting.

On motion of Dr. Hale, Voted,—that any Fellow of the Society who shall pay his assessment in advance for 1844, shall be entitled to receive the volume of the Library of Practical Medicine for that year, whenever it is ready for circulation.

On motion of Dr. Cogswell, Voted,—that the publishing Committee be authorized to add a biographical notice, together with a portrait of Sir Astley Cooper to the volume now being published, provided the expense of the same shall not exceed thirty-five dollars.

The Committee appointed at the last meeting of the Counsellors to consider the "relations to the Society of those Fellows, who, after having removed from the State, return and resume practice therein," presented the following Report, which was accepted:

"It was the obvious design of the act of Incorporation of 1803, and of the Society under that act, that the Society should embrace every respectable, educated physician residing in the Commonwealth, who should be disposed to connect

himself with it. Neither the Act of Incorporation nor the By-laws contemplate the entire separation from the Society of any Fellow who should remove from the State, but only a suspension of his duties and obligations to the Society, so long as his absence cuts him off from a direct enjoyment of its privileges. If he returns to the State, as a resident, he has a right to resume those privileges, and the Society cannot justly deprive him of them; and it follows, of course, that the duties of Fellowship remain attached to him on his return, without any more act of recognition of them on his part. The Committee are therefore unanimously of opinion, and respectfully Report,—that a Fellow of this Society who removes from the State and returns again to it, resumes all the rights and privileges, and all the obligations of a Fellow, from the time that he regains a residence in this Commonwealth.

WOODBRIDGE STRONG,
ENOCH HALE,
D. HUMPHREYS STORER.

On motion of Dr. Hale, Voted,—that the Treasurer, with the advice of the President, shall take such legal measures as may seem necessary and proper, to enforce the payment of assessments of delinquent members.

The meeting was then dissolved.

D. HUMPHREYS STORER,
Recording Secretary.

FEBRUARY MEETING, 1844.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's room, Masonic Temple, Tremont Street, on Wednesday, Feb. 7, 1844, at 11 o'clock, A. M.

The record of the last meeting having been read, the Corresponding Secretary reported the names of the gentlemen who had become Fellows of the Society since the last stated meeting.

Dr. Fisher, of Boston, chairman of the Committee, appointed at the June meeting of the Counsellors, to report upon the subject of the Society's engaging in a series of statistical and other investigations, presented an elaborate report.*

The Report was accepted, and a Committee, consisting of Dr. Fisher, of Boston, Dr. Jarvis, of Dorchester, and Dr. Holmes, of Boston, was appointed to lay the whole subject before the members of the Society, and to devise plans and means to carry the matter into execution.

On motion of Dr. Hale, it was voted,—that the said Committee be authorized to draw on the Treasurer for the sum of thirty dollars to defray any expense which might be incurred by them in carrying out the objects in view.

Dr. John Homans, of Boston, was chosen to deliver the annual address,—Dr. Ware having declined.

On motion of Dr. Hale, it was voted,—that the Committee appointed to audit the Treasurer's accounts, be directed to examine also the accounts of the Fellows of the Society, and report generally on the state of the collection of assessments.

Drs. Hale and Buck were appointed a Committee to examine the Treasurer's accounts.

Drs. Thomas and Flint were appointed a Committee to examine the Library;—and also to ascertain the number of volumes of each volume of Practical Medicine contained therein.

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* See Proceedings of the Society, pp. 48—66.

Drs. Townsend, Morrill and Lewis were appointed a Committee to attend to the proper apportionment of Counsellors.

The meeting was then dissolved.

SAMUEL MORRILL, *Sec'y. Pro. Tem.*

MAY MEETING, 1844.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's room, Masonic Temple, Tremont Street, on Thursday, May 30th, 1844, at 10 o'clock, A. M.

The records of the last meeting having been read, the Corresponding Secretary reported the names of the gentlemen who had become Fellows of the Society since the last meeting of the Counsellors.

Voted, To proceed to the choice of officers for the ensuing year.

Drs. Dalton, of Lowell, Fisher, of Boston, and Ufford, of South Hadley, were appointed Scrutineers.

The following gentlemen were elected to the several offices.

JACOB BIGELOW, *President;* ROBERT THAXTER, *Vice President;* SAMUEL MORRILL, *Corresponding Secretary;* D. HUMPHREYS STORER, *Recording Secretary;* WOODBRIDGE STRONG, *Treasurer;* CHARLES G. PUTNAM, *Librarian.*

CENSORS. *For the first Medical District, and the Society at large*, Drs. Z. B. Adams, John Jeffries, Anson Hooker, Winslow Lewis, Jr., George W. Otis, Jr.

Second Medical District, Drs. Benjamin F. Heywood, C. W. Wilder, William Workman, Benjamin Pond, Joseph Sargent.

Third Medical District, Drs. David Bemis, E. E. Denniston, Addison S. Peck, Daniel Thompson, James Dean.

Fourth Medical District, Drs. Henry H. Childs, R. Fowler, A. G. Welsh, R. Worthington, N. S. Babbitt.

Fifth Medical District, Alexander Read, Andrew Mackie, Samuel Sawyer, Amory Glazier, Joseph Haskell.

The Treasurer's report on the annual income and expenses of the Society, and on the state of the Permanent Fund, together with the report of the Auditing Committee, was read and accepted.

The report of the Committee appointed to examine the Library was read and accepted.

The report of the Censors for the first Medical District and for the Society at large was read and accepted.

Drs Homans, Storer, and J. B. S. Jackson, were chosen Committee on Publications.

Drs. Strong, Lewis, and Otis, were chosen Committee on Resignations.

Dr. William J. Walker, of Charlestown, was chosen to deliver the next Annual Discourse.

Dr. Hale having declined being considered a candidate for re-election on the Publishing Committee, it was

Voted, That the thanks of the Counsellors be presented to Dr. Hale, for his long continued and very faithful services.

Dr. Bartlett, of Concord, moved that a Committee of five be chosen from among the Counsellors, to investigate the subject of insanity among the colored population, which subject was referred to the Council by the Society, and to report at the next meeting of the Counsellors.

Drs. Homans, Ware, Holmes, Jarvis, and Buck, were appointed this Committee.

Voted, That a Committee be appointed to consider the expediency of recommending to the Society to amend the By-laws, or rules and orders, as follows, viz.:

1. In reference to the powers and duties of the Treasurer, so as to provide, if possible, a more efficient system of collection, and a more perfect state of the accounts.

2. In regard to the distributions of books; and to provide for returns from the Librarians of District Societies.

3. So as to provide that the Corresponding Secretary, Recording Secretary, and Librarian, be a Standing Committee to revise and correct, from time to time, the Catalogue of Members of the Society.

Drs. Hale, Morrill and Gould were chosen this Committee.

Voted, That the Treasurer be directed to put in suit the accounts of those Fellows of the Society whose dues amount to four assessments or more, unless there shall, in any case, appear to be good reason for further indulgence; provided that he shall first give notice to every such Fellow of the passage of this vote, and wait a reasonable time for a reply to such notice; and in every case where application is made for relief or delay, he shall communicate it to the Counsellors, and wait for their decision upon it.

Dr. Dalton, of Lowell, presented the request of a Committee of Members of the Massachusetts Medical Society, resident in the northerly section of the county of Middlesex, that the Counsellors would issue a charter for the establishment of a District Medical Society.

This subject was referred to a Committee, consisting of Drs. Dalton, Green and Howe, with the request that they report to the Counsellors at the next stated meeting.

Voted, To dissolve the meeting.

D. HUMPHREYS STORER,
Recording Secretary.

The following gentlemen have been allowed to resign their Fellowship: Daniel Green, Auburn, 1844; Nathaniel S. Prentiss, Roxbury, 1844; Benjamin James, Weston, 1844; and being more than sixty years of age, they have become retired members.

The following gentlemen have become Fellows of the Society:

By election. In 1844, Thomas F. Sexton, Boston.

By signing By-Laws in course. In 1841, James Ayer, Sandwich.

By signing By-Laws in course. In 1843, John Frazier Head, Boston; Wm. J. Currier, Lynn; Edward P. Le Prohon, Boston; Alexander Jackson, Boston; Moses W. Weld, Boston; Edward Brooks, Jr., Boston; Edward D. G. Palmer, Boston; John Spence, Jr., Boston; Charles Bailey, East Medway; Cleveland S. Stilwell, Lancaster.

In 1844, Henry J. Bigelow, Boston; Benjamin H. Ellis, Springfield; Charles A. Lockerby, East Bridgewater; Henry D. Hitchcock, Middleborough; Alvan Bacon, Boston; Anthony Woodside, Roxbury; S. Watson Drew, Woburn; Wm. E. Townsend, Boston; Benjamin Hubbard, Weymouth; L. B. Russell, Boston; Edward B. Peirson, Salem; Wm. H. Thayer, Boston; Charles E. Buckingham, Boston: Charles A. Phelps, Boston; Freeman H. Jenkins, West Harwich; Henry Russell, New Bedford; Justin E. Stevens, Boston; Jonas W. Holman, Boston; Wm. S. Coffin, Boston; Francis M. McLellan, Boston; Jerome Harris, West Cambridge; Fordyce Foster, Cohasset; Charles Knowlton, Ashfield; John Heard, Holliston; William Knight, Marlborough; Miles Spaulding, Dunstable; George B. Loring, Chelsea; John Bartram, Townsend; Sidney Drinkwater, Chelsea.

Officers of the Massachusetts Medical Society.

ELECTED MAY 30, 1844.

JACOB BIGELOW, *President.*

ROBERT THAXTER, *Vice President.*
SAMUEL MORRILL, *Corresponding Secretary.*
D. HUMPHREYS STORER, *Recording Secretary.*
WOODBRIDGE STRONG, *Treasurer.*
CHARLES G. PUTNAM, *Librarian.*

CENSORS. *For the Society at large, and the first Medical District,* Z. B. Adams, John Jeffries, Anson Hooker, Winslow Lewis, Jr., George W. Otis, Jr.

For the second District, Benjamin F. Heywood, C. W. Wilder, Wm. Workman, Benjamin Pond, Joseph Sargent.

For the third District, David Bemis, E. E. Denniston, Addison S. Peck, Daniel Thompson, James Dean.

For the fourth District, Henry H. Childs, Royal Fowler, A. G. Welch, R. Worthington, N. S. Babbitt.

For the fifth District, Alexander Read, Andrew Mackie, Samuel Sawyer, Amory Glazier, Joseph Haskell.

Committee on Publications, J. Homans, D. H. Storer, J. B. S. Jackson.

Committee on Resignations, W. Strong, W. Lewis, Jr., G. W. Otis, Jr.

William J. Walker, M. D., of Charlestown, is appointed to read the next annual discourse.

Officers of District Medical Societies.

Essex Southern District Society. Andrew Nichols, *President.* Abel L. Peirson, *Vice President.* Geo. Choate, *Treasurer.* William P. Richardson, *Librarian.* William Mack, *Secretary.*

Worcester District Society. No return.

Berkshire District Society. No return.

Hampshire District Society. No return.

Southern District Society. Alexander Read, *President.* John Perkins, Julius S. Mayhew, *Vice Presidents.* Samuel Sawyer, *Secretary.* William A. Gordon, *Treasurer* and *Librarian.*

Barnstable District Society. Aaron Cornish, *President.* Henry Tuck, *Vice President.* James Ayer, *Secretary.* John Harpur, *Treasurer.* Elijah W. Carpenter, *Librarian* and *Curator.*

Hampden District Society. David Bemis, *President.* Wm. A. Davis, *Treasurer, Secretary* and *Librarian.*

Essex North District Society. Rufus Longley, *President.* John Atkinson, *Vice President.* Martin Root, *Secretary.* Jeremiah Spofford, *Treasurer* and *Librarian.*

APPENDIX.

1845.

PROCEEDINGS OF THE MASSACHUSETTS MEDICAL SOCIETY.

ANNUAL MEETING.

The Annual Meeting of the Massachusetts Medical Society was held Wednesday, May 28th, at the Masonic Temple, Tremont street, at 10 o'clock, A. M.

The records of the last meeting of the Society, and of the several meetings of the Counsellors, were read.

The following report of the Committee, appointed at the last meeting of the Counsellors, to attend to the proper apportionment of Counsellors, was read and accepted:

Essex Southern District Medical Society is entitled to	8
Essex North " " "	3
Worcester, " " "	10
Berkshire, " " "	4
Hampshire, " " "	4
Southern, " " "	4
Barnstable, " " "	3
Hampden, " " "	4
Bristol County, unconnected with District Society,	2
Franklin County, " "	3
Nantucket, " " "	1
Plymouth, " " "	3

Middlesex District Medical Society,		7
Middlesex County, unconnected,		9
Norfolk County,	"	6
Suffolk County,	"	25

All which is respectfully submitted, by

S. MORRILL,
D. HUMPHREYS STORER,
CHARLES G. PUTNAM,
} *Committee.*

Reports were then read from the Secretaries of the Essex South, Essex North, Hampshire, Southern, Barnstable, Hampden, and Middlesex District Medical Societies, stating the organization of the several Societies, for the year 1845, — and nominating to the Society the Fellows who had been selected for their Counsellors.

Voted, To proceed to the choice of Counsellors.

Drs. Z. B. Adams, of Boston, Sargent, of Worcester, Homans, of Boston, Read, of New Bedford, and Cutter, of Pepperell, were appointed Scrutineers.

The Scrutineers reported the following gentlemen as having been elected as Counsellors:

Essex Southern District Society. Drs. Andrew Nichols, Abel L. Peirson, Ebenezer Hunt, George Choate, Joseph Reynolds, Samuel Johnson, William Prescott.

Worcester District Society. Drs. Stephen Bachelder, John Green, Edward Flint, Benjamin F. Heywood, Charles W. Wilder, John G. Metcalf, Pearson T. Kendall, Joseph Stone, William Workman, D. S. C. H. Smith.

Berkshire District Society. Drs. Henry H. Childs, Asa G. Welch, Royal Fowler, Robert Worthington.

Hampshire District Society. Drs. Benjamin Barrett, Edward G. Ufford, A. S. Peck, H. Thompson.

Southern District Society. Drs. Paul Spooner, Alexander Read, Amory Glazier, Leroy M. Yale, John Perkins.

Barnstable District Society. Drs. Elijah W. Carpenter, Thomas P. Jackson, George Atwood.

Hampden District Society. Drs. William Bridgman, David Bemis, Jehiel Abbott, James M. Smith.

Essex North District Society. Drs. Rufus Longley, Dean Robinson, Richard S. Spofford.

Franklin County. Drs. Alpheus F. Stone, Stephen W. Williams, Christopher Dean.

Middlesex County. Drs. Timothy Wellington, Zadok Howe, John C. Dalton, Elisha Huntington, Anson Hooker, Nehemiah Cutter, J. S. Hurd, C. F. Chaplin, Simon Whitney, Horatio Adams, Hiram Hosmer, Luther V. Bell, J. M. Whittemore, Harlin Pillsbury, D. Mowe, Peleg Bradley.

Norfolk County. Drs. Nath'l. Miller, Robert Thaxter, Jeremy Stimpson, Eben'r. Alden, Eben'r. Stone, Henry Bartlett.

Nantucket County. Dr. Elisha P. Fearing.

Plymouth County—(not included in District Society.)—Drs. Ezekiel Thaxter, Paul L. Nichols, Winslow Warren.

Bristol County—(not included in District Society.)—Drs. Caleb Swan, Alfred Wood.

Suffolk County. Drs. George C. Shattuck, Jacob Bigelow, George Hayward, Enoch Hale, John Ware, S. D. Townsend, Z. B. Adams, John Homans, Woodbridge Strong, John Jeffries, G. W. Otis, Jr., Winslow Lewis, Jr., Samuel Morrill, J. V. C. Smith, D. H. Storer, John Flint, J. C. Hayden, John D. Fisher, Charles G. Putnam, John B. S. Jackson, Alexander Thomas, Ephraim Buck, A. A. Gould, Charles T. Jackson, Marshall S. Perry.

The report of the Committee appointed at the last meeting of the Counsellors, to examine the Library and Cabinet, was read and accepted.

The Treasurer's annual report was read and accepted; from which it appeared that the amount received into the Treasury, during the year, ending May 27th, 1845,

was, - - - - - - - -	$1662 38
The amount of expenses, - - -	773 93
Leaving a balance of - - -	$888 45

The amount of the Permanent Fund, which is invested in the Massachusetts Hospital Life Insurance Company, is $8817 25.

The following report of the Auditing Committee was then read and accepted:

They find the books correctly kept, and the accounts properly cast and vouched; and that there have been received, $1662 38; and expended, $773 93; leaving a balance on hand of $888 45.

They also find the amount of the Permanent Fund, represented by three policies in the hands of the Treasurer, to be $8817 25.

There are also in his hands promissory notes to the amount of $65.

The Committee feel bound to testify to the unusual and successful exertions of the Treasurer, in the collection of assessments long outstanding; so that he has collected of such arrears upwards of $450.

EPHRAIM BUCK, } *Auditing*
AUGUSTUS A. GOULD, } *Committee.*

Boston, May 26, 1845.

The Committee on Publications presented the following report, which was accepted:

That in accordance with a vote of the Counsellors, passed at their meeting in October last, they contracted with Mr. H. G. Langley, of New York, for 750 copies of a volume of Copland's Medical Dictionary, then in course of re-publication by him,—said volume being in continuation of the work comprised in the two volumes heretofore published, and distributed to the members of the Society; to be delivered in Boston in all the month of April last; and a volume every succeeding year, until the work shall be completed.

Your Committee had no reason to doubt the fulfilment of the contract, until the middle of April, when they were informed by the Editor, Dr. Lee, that Mr. Langley had transferred his interest in the re-publication to the Messrs.

Harper, who, desiring to make the work as complete as possible, so far as additions from the Medical Literature of our own country is concerned, had not been able to advance the re-publication as rapidly as was at first anticipated, and of necessity, would be unable to furnish the volume promised to the Society, so as to be distributed to the Fellows at their annual meeting.

He stated that the months of May and June would afford time sufficient for the completion, and that we might receive it early in July.

On learning these facts, the Committee, considering that it was impracticable to procure a substitute in season, of necessity acceded to the proposed delay.

While they regret the delay in its timely reception, they think that some compensation will be found for the disappointment, in the value of the work, and are encouraged to hope that the remaining volumes will be punctually received.

JOHN HOMANS,
D. H. STORER,
J. B. S. JACKSON,
} *Committee.*

On the recommendation of the Counsellors,—

Voted, That the XLVIth By-Law be amended by adding a fourth section as follows, viz.:

"IV. The Librarian of every District Medical Society shall make a report to the Librarian of this Society, in the month of January annually, of the books distributed in said District Society during the year previous, and of the copies remaining in his possession; and no additional copies of the Library of Practical Medicine shall be sent to any District Society, until a sufficient report has been received as aforesaid."

On the same recommendation,—

Voted, That the following additional "Orders" be enacted, viz.:

"XVIII. The Treasurer shall keep the money of the Society safely deposited in some Bank. He shall keep the accounts so as to exhibit clearly the state of the account of each individual Fellow of the Society, and of each District

Society, as well as of the general accounts of the Society. He shall report to the Counsellors at their first meeting after the annual meeting of the Society, the names of the delinquent members from whom assessments are then due for four or more years, with such information as he may possess that may be important in regard to them. He shall receive a salary of *one hundred dollars* a year, in lieu of compensation for clerk hire, and the ordinary expenses of collecting assessments."

"XIX. The Corresponding Secretary, Recording Secretary, Treasurer, and Librarian, shall be a standing Committee, to revise and correct, from time to time, at least once in each and every year, the catalogue of members of the Society. They shall report at the opening of each annual meeting, the number of Fellows in each District Society, and in each county included in any District Society, and the number of Counsellors to be elected in each.

At one o'clock the Annual Address was read by Dr. William J. Walker, of Charlestown, "On the Treatment of Compound and Complicated Fractures."

On motion of Dr. Homans, it was

Voted, That the thanks of the Society be presented to Dr. Walker for his learned and practical discourse.

Voted, To dissolve the meeting.

D. HUMPHREYS STORER, *Rec. Sec'ry.*

The Fellows of the Society then proceeded to the Hall over the Worcester Railroad Depot, and dined together, to the number of 400.

Proceedings of the Counsellors.

OCTOBER MEETING, 1844.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's room, Masonic Temple, Tremont street, on Wednesday, October 2d, 1844, at 11 o'clock, A. M.

The records of the last meeting having been read,—

Dr. Homans, of the Committee appointed to investigate the subject of insanity among the colored population, presented, in behalf of that Committee, the following partial report, which was accepted, and the further consideration of the subject was referred to the same Committee.

The Committee appointed at the meeting of the Counsellors in May last, to investigate the subject of insanity among the colored population in the State of Massachusetts, which subject was referred to the Counsellors by the Society, and to report thereon at the next meeting of the Counsellors, beg leave to submit the following

REPORT.

Your Committee ascertained that fifty-four towns were stated by the census each to contain one or more colored persons, who were either insane or idiotic, or deaf and dumb, or blind. To test the truth of this statement, they addressed some responsible individual, either a physician, or clergyman, or postmaster, residing in each of these several towns, by a circular letter, containing the requisite inquiries. To this circular, forty-seven answers have been received. In these forty-seven towns, there were in 1840, according to the census, one hundred and seventy-three colored persons insane or idiotic, four deaf and dumb, and six blind. But the result of our inquiries, is, that there were at the time of taking the census in 1840, twenty-one colored persons insane or idiotic, two deaf and dumb, and four blind in these same forty-seven towns. The error, in some instances, evidently arose from the insertion of the number of white persons who were insane or idiotic, or blind, or deaf and dumb, into the column appropriated to the enumeration of the colored insane, &c. &c. The manner in which the column of insane colored persons is headed in the printed form used in taking the census, is such as to render this error very liable to be committed.

One or two instances will suffice to illustrate this. In the

town of Worcester, there were, according to the census, in the family of Dr. S. B. Woodward, one hundred and thirty-three colored insane persons, supported at public charge, whereas all the insane persons then in the Hospital, as appears by Dr. Woodward's records to have been one hundred and thirty-three, were placed in the column of colored persons. Now in truth, when the census was taken, there were in the hospital, under Dr. Woodward's charge, seven colored insane persons only, and these were supported at public charge. The error is common in that record of the census, for we learn that two deaf and dumb white persons in the same town were placed in the column of colored persons. Again, your Committee learn that there were four insane or idiotic persons, all of whom were white, whose names were placed in the column of the colored insane.

In the town of Rochester, it is stated that there were three insane colored persons supported at private charge, viz.: one in the family of Gideon Barstow, another in the family of Josiah Bisbee, and a third in the family of Josiah D. D. L. Hathaway; and beside these, one blind colored person is stated to have been in the family of John Clapp. Now it appears that the individuals alluded to were all of them white. The one in the family of Gideon Barstow, was his brother Benjamin; Josiah Bisbee himself was partially insane; Josiah D. D. L. Hathaway was also insane, and John Clapp was blind. We might in this manner examine the list in detail, and point out numerous errors, but we deem these sufficient for the present.

Your Committee desire further opportunity to investigate the subject, and obtain all the information they have requested, and therefore ask leave to sit again and report hereafter.

Respectfully,

JOHN HOMANS,
For the Committee.

Boston, Oct. 2, 1844.

The Committee appointed to report on the expediency of recommending to the Society to amend the By-Laws and

Orders, respectfully recommend the adoption of the following Resolutions:

1. *Voted,* That the Counsellors recommend to the Society at the next annual meeting, to amend the By-Laws, by adding to the XLVIth By-Law a fourth section as follows, viz.:

"IV. The Librarian of every District Medical Society shall make a report to the Librarian of this Society in the month of January annually, of the books distributed in said District Society, during the year previous, and of the copies remaining in his possession; and no additional copies of the Library of Practical Medicine shall besent to any District Society, until a sufficient report has been received as aforesaid."

2. *Voted,* That the Counsellors recommend to the Society, at the next annual meeting, to enact the following additional "Orders," viz.:

"XVIII. The Treasurer shall keep the money of the Society safely deposited in some Bank. He shall keep the accounts so as clearly to exhibit the state of the account of each individual Fellow of the Society, and of each District Society, as well as of the general accounts of the Society. He shall report to the Counsellors at their first meeting after the annual meeting of the Society, the names of all delinquent members from whom assessments are then due for four or more years, with such information as he may possess, that may be important in regard to them. He shall receive a salary of one hundred dollars a year, in lieu of compensation for clerk hire, and the ordinary expenses of collecting assessments.

"XIX. The Corresponding Secretary, Recording Secretary, Treasurer, and Librarian, shall be a standing Committee, to revise and correct from time to time, at least once in each and every year, the catalogue of members of the Society. They shall report at the opening of each annual meeting, the number of Fellows in each District Society, and in each county, not included in any District Society, and the number of Counsellors to be elected in each.

All which is respectfully submitted,

ENOCH HALE, *For the Committee.*

Voted, That the Committee on Publications be authorized to select and publish a fifteenth volume of the Library of Practical Medicine, to be issued at the next annual meeting; one copy to each District Medical Society's Library, one copy to each retired member, and one copy to each Fellow of the Society, who shall have paid his assessments to that time; and that the President of the Society be authorized to order the payment of not exceeding one half the cost of said volume before its full completion, in case it shall, in his judgment, and in the judgment of the Committee, seem expedient to do so; *provided*, that the whole expense shall not exceed one thousand dollars.

Voted, That the Committee on Publications be authorized to bind the Society to take the subsequent parts of Copland's Medical Dictionary in future volumes of the Library of Practical Medicine, if they shall be able to obtain it on such terms as that they shall believe it for the interest of the Society so to do.

Doct. Dalton, in behalf of the Committee to whom was presented the petition of several members resident in the northerly section of the county of Middlesex, for the establishment of a District Medical Society, offered the following Report, which was adopted:

"The Committee to whom was referred the petition of sundry Fellows, resident in the northerly section of the county of Middlesex, praying the Counsellors to issue a charter for the establishment of a District Medical Society, to embrace certain specified limits in said county, beg leave to report:

That after such inquiries as they were enabled individually to make, they received the impression that but an inconsiderable fraction of the Fellows residing within the limits specified, had been consulted, or had expressed any wish in relation to the proposed Society. They therefore, after discussion, came to the conclusion, that unless they should, previously to the meeting of the Counsellors, at which they were expected to report, receive some assurance that the majority of the Fel-

lows interested were desirous of the establishment of such a Society, and would give some pledge that they would attend its meetings, and otherwise, as opportunity should occur, endeavor to promote its interests, they should feel constrained to report unfavorably on the petition. With this view, your Committee drew up a paper with the following caption:

The undersigned, members of the Massachusetts Medical Society, resident in the northerly section of the county of Middlesex, believe that the establishment of a District Medical Society within its limits, embracing the following towns, viz.: Lowell, Billerica, Ashby, Townsend, Pepperell, Dunstable, Groton, Shirley, Tyngsboro', Chelmsford, Carlisle, Littleton, Dracut, Tewksbury, Concord, and Acton (the meetings of which shall be holden in the city of Lowell), would be of great utility. Being desirous of enjoying the advantages and privileges of such an institution, we do hereby pledge ourselves (should a petition for a charter to that effect, already in the hands of the Counsellors, be granted) to become active members of the same, by attending its meetings, and otherwise promoting its interests as opportunity may occur.

Your Committee felt that they should be authorized to report favorably on the petition referred to them, when the names of a respectable majority of the Fellows interested should be affixed to such a pledge. Such a paper having been circulated within the last few weeks among the Fellows residing within the proposed limits, has received the signatures of twenty-three out of twenty-seven Fellows of the Society. Several other Fellows, whose names do not appear on the paper, have previously expressed themselves favorably to the proposed measure, and are ready to sign it on application. Your Committee, therefore, are of opinion that it is expedient for the Counsellors to grant a charter for a District Medical Society as proposed for by the petitioners.

All which is respectfully submitted,

JOHN C. DALTON,
For the Committee.

Voted, That a charter be granted for a District Medical Society, in conformity to the above report.

The following complaint was presented, and a Committee, consisting of Drs. Brown, of Medway, Stone, of Walpole, and Phelps, of Attleboro', was chosen to investigate the subject, and report thereupon at the next meeting of the Counsellors:

"The undersigned, members of the Massachusetts Medical Society, would respectfully represent to the Board of Counsellors, that Dr. Lyman B. Larkin, of Wrentham, has, for a number of years past, been in the constant practice of violating the 10th and 58th Articles of the By-Laws of said Society, by advertising, recommending and selling secret Medicines, and abetting irregular practitioners in the sale of the same. We would therefore respectfully request that a Committee be appointed to investigate the case, that the reputation of our Society may suffer no longer.

THADDEUS PHELPS,
JAMES W. FOSTER."

Dr. Harpur, Librarian of the Barnstable District Medical Society, requested that the Counsellors would appoint some Fellow to designate sixty Volumes, to which that Society was entitled by our By-Laws.

Voted, That the Librarian be authorized to designate and deliver the volumes asked for.

A letter was read from Dr. William J. Walker, accepting the appointment to deliver the Annual Address before this Society.

Drs. Alvan Hyde Turner, of Tyringham, Noble B. Pickett, of Great Barrington, and Isaac Colby, of Salem, were elected Fellows of the Society.

Voted, To dissolve the meeting.

D. HUMPHREYS STORER,
Recording Secretary.

FEBRUARY MEETING, 1845.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's room, Masonic Temple, Tremont Street, on Wednesday, February 5th, 1845, at 11 o'clock, A. M.

The records of the last meeting were read.

The Treasurer having stated that he had received a large number of letters from delinquent members of the Society, which he wished to lay before the Counsellors for their consideration, upon motion of Dr. Shattuck it was

Voted, That a Special Committee be appointed, with full power to examine and adjust all claims against delinquent members.

The Treasurer and two Secretaries were appointed that Committee.

The Committee appointed to examine the case of Dr. Larkin, of Wrentham, presented the following Report:

The Committee appointed to investigate certain charges preferred against Dr. Larkin, attended to that duty, and beg leave to report:

That they held a meeting at Wrentham, at which Dr. Larkin was present. It appears that Dr. Larkin has used "Page's Vegetable Syrup," and that he wrote a letter to the proprietor recommending the same, as will be seen by referring to the accompanying documents. But he says in answer, that the letter was published without his knowledge or consent; and further, that it was written before he was aware of the existence of the fifty-eighth By-Law, if it really existed at that time, and that it has been his intention to conform to the By-Laws of the Society, and in future, he shall endeavor to do the same, even if it should deprive him of the liberty of selling this medicine, in case the Counsellors should decide that such sale is a violation of the By-Laws.

He likewise acknowledges that he has used "Dr. Lee's Gravel Specific,"—in explanation of which he referred the Committee to the communication of Dr. J. C. Warren, contained in the October number of the American Journal of Medical Science, pages 305 and 306. We likewise refer to the accompanying documents for an account of "Dr. Lee's Specific." All which is respectfully submitted,

ARTEMAS BROWN,
EBENEZER STONE,
THADDEUS PHELPS.

This Report was accepted, and on motion of Dr. Hale, it was

Voted, Inasmuch as Dr. Larkin declares that his violations of the fifty-eighth By-Law were in ignorance of its provisions, and avows his determination to conform to it in future, therefore,

Voted, That the Counsellors take no further order on the subject.

Voted, That the Counsellors recommend to the Society at the next annual meeting, to amend the XIIIth Article of the By-Laws, by adding thereto the following words,—"Whenever a member of the Massachusetts Medical Society, not a member of the Board of Counsellors, shall be appointed on any Committee by the Society at large, or by the Counsellors, at any of their meetings, to report to the Counsellors, he shall be requested to meet with the Committee, and take part in their discussions, on the subject so committed, until it shall have been definitely disposed of."

The Committee appointed at the meeting of the Counsellors, in May last, to investigate the subject of Insanity among the colored population in the State of Massachusetts, presented their final report—which was accepted.

The Committee appointed at the meeting of the Counsellors in May last, to investigate the subject of Insanity among the colored population, in the State of Massachusetts, which subject was referred to the Council by the Society, and to report thereon at the next stated meeting of

the Counsellors, having reported at that meeting and obtained leave to sit again, beg leave to submit the following as their final Report:

The statements respecting the prevalence of Insanity—of deafness and dumbness, and of blindness, among the colored population of this State, made in the printed edition of the sixth census of the United States, differ so widely from the ordinary opinions of medical men in regard to the liability of any class or race of people to these derangements, that they were induced to make especial inquiry, as to the facts as they present themselves to the members of the Society.

The Massachusetts Medical Society embraces within its membership almost all the practising physicians in the State, and has one or more of its members in almost every town, village and neighborhood, and have therefore knowledge of, or the means of ascertaining, the domestic condition of almost every family within this Commonwealth.

A Committee appointed for this purpose, by the Society, examined the printed editions of the late census, and also the manuscript copies of the same relating to Massachusetts, now deposited in the District Clerk's Office, in Boston.

According to the printed edition, the insane, blind, deaf and dumb colored persons were in the following towns.

COLORED INSANE, BLIND, AND DEAF AND DUMB.

TOWNS.	INSANE.	BLIND.	DEAF AND DUMB.
New Bedford,	2		
Freetown,	2		
Raynham,	1		
Taunton,	2	1	
Swanzey,	2		
Attleboro',	1		
Carver,	1		1
Wareham,	1		
Plympton,	4	1	1
Scituate,	6	1	2
Hingham,	2	7	1
Rochester,	2	2	
Needham,	2		
Randolph,	1		

Quincy,	1	1	
Stockbridge,	1		
Becket,	1		
Sandisfield,	3		
Deerfield,			1
Leverett,		1	
Milford,			4
Mendon,		1	
Uxbridge,		1	
Warren,	1		
Worcester,	133		2
Lancaster,		1	
Sterling,	2		
Princeton,	1		1
Hubbardston,	1	1	
Leominster,	2		
Winchendon,	1		
Lexington,		1	
Reading,	3		
Wilmington,	2		
Bedford,	1		
Townsend,	1		
Concord,	1		
Natick,	1		
Salem,	3		1
Danvers,	2		
Essex,	2		
Topsfield,	1		
Georgetown,	2		
West Springfield,	1		1
Boston,	7	3	2
	200	22	17

No record is found, in the copy of the detailed census of Massachusetts, now in the Clerk's Office, of any colored insane persons in the towns of Freetown, Raynham, Attleboro', Randolph, Quincy, Sandisfield, Warren, Leominster, Reading, Wilmington, Bedford, Townsend, Topsfield, Georgetown,—and in the town of Needham, only one is recorded. In Salem, one; Danvers, one; Essex, one; and Boston, five only are recorded among the colored insane.

The former towns are stated in the printed copy of the census, to have twenty-four colored insane,—and the latter are stated to have seven more than were originally recorded. These thirty-six must have been added by the mistake of the printer, or the copyist.

In the same original copy, is no record of any colored blind

persons in the towns of Hingham, Scituate, Hubbardston, Quincy, Lexington, Leverett, Mendon, Uxbridge, Lancaster.

Nor is there any record in the same copy, of any colored deaf and dumb, in the towns of Milford, West Springfield, Scituate, Worcester, Carver, Hingham, Princeton, Salem.

The thirteen colored blind, and the eleven colored deaf and dumb, which are stated by the printed copy of the census to be in these towns, must also have been added by the error of the printer, or the amanuensis.

Subtracting these numbers which weré not in the original record, from the numbers in the printed report, would leave only one hundred and seventy-four insane, nine blind, and six deaf and dumb, among the colored population of Massachusetts, according to the Marshal's record.

That record states the colored insane to be in the following towns, and in the families of the following persons :

Towns.	*Insane.*	*Householders.*
Swanzey,	1	James Peckham.
	1	Richard Walker.
Wareham,	1	Mary Howard.
Carver,	1	Job Morton.
Plympton,	4	Jacob Cushman.
	1	Simeon Churchill.
Hingham,	1	Warren Thayer.
	1	Thomas Leavitt.
Needham,	1	Alvah Knowlton.
Becket,	1	Eben Rudd.
West Springfield,	1	Levi Cooper.
Worcester,	133	Samuel B. Woodward.
Sterling,	2	Israel Palmer.
Hubbardston,	1	Artemas Hubbard.
Winchendon,	1	Deborah Greenwood.
Concord,	1	Abel Moore.
Natick,	1	Dexter Moulton.
Salem,	1	Mrs. J. Fay.
Essex,	1	Joseph Chadbourn.
Topsfield,	1	Porter Kneeland.
Andover,	1	Joseph Stevens, 3d.
New Bedford,	2	Peleg S. Allen.
Rochester,	1	Gideon Barstow.
	1	Josiah Bisbee.
	1	J. D. D. L. Hathaway.
Danvers,	1	Cornelius Roundy.
Stockbridge,	1	Rufus B. Jafferd.
Boston,	1	Daniel Chandler.

Towns.	*Insane.*	*Housekeepers.*
	4	John S. Butler.
Scituate,	1	Freeman Foster.
	1	John B. Ellmes.
	1	Samuel Stoddard.
	1	Martin Damon.
	1	Noah B. Nichols

In the same record the colored blind are stated to be in the following towns and families:

Towns.	*Number of Blind.*	*Heads of Family.*
Taunton,	1	Peter Adams.
Carver,	1	Levi Vaughan.
Plympton,	1	Jacob Cushman.
Rochester,	1	John Clapp.
Boston,	2	Daniel Chandler.
	1	Thomas George.
	1	B. Haggarty.
Edgartown,	1	Jethro Ripley.

The deaf and dumb are stated to be as follows:

	Deaf and Dumb.	
Plympton,	1	Simeon Churchill.
Deerfield,	1	Dennis Stebbins,
Boston,	1	John White.
	1	Thomas Maguire.
	1	Elijah Loring.
Scituate,	1	Samuel Stetson.

Your Committee, through the members of the Society who lived in these towns, made inquiry in regard to every family and town herein above named, and have received the report from every town, excepting two, Carver and Swanzey.

The result of this special examination shows that the printed census, Blair and Rives' edition, is correct in regard to the towns of Andover, New Bedford, West Springfield, Becket, Uxbridge, Deerfield, Concord, Warren.

That in Salem, there were but two colored insane, instead of three, as printed; in Worcester seven, instead of one hundred and thirty-three; and in Taunton, there were three blind, instead of one, as printed in the sixth census; Boston five insane, instead of seven.

That in all the other towns or cities of Massachusetts, which are reported, in Blair and Rives' edition of the sixth cen-

sus, to have colored blind, insane or deaf and dumb, there were in the year 1840, excepting Carver and Swanzey, no colored persons, who were insane, idiotic, blind, or deaf and dumb.

Your Committee would further state that many families which are recorded, and reported as having *colored* insane, blind, or deaf and dumb persons, were found not only to have no such persons, but had *white* insane, blind, or deaf and dumb persons, who were not so recorded and reported. In these cases, the error was in the Marshal's placing these in the wrong column, and in several instances this mistake was made in the condensation of the detailed report into the abstract of the towns.*

All which is respectfully submitted,

JOHN HOMANS,
JOHN WARE,
EPHRAIM BUCK,
O. W. HOLMES,
E. JARVIS.

Boston, February 5, 1845.

Drs. Buck and Gould were appointed a Committee to examine the Treasurer's accounts.

Drs. Thomas and Flint were appointed a Committee to examine the Library.

Drs. Morrill, Storer and Putnam were appointed a Committee to attend to the proper apportoinment of Counsellors.

Drs. N. B. Shurtleff, Cole and Abbott were appointed a Committee to furnish the members of the Society with Vaccine Virus at the next Annual Meeting.

Dr. Seba Carpenter, of Attleboro' was elected a Fellow of the Society.

Voted, To dissolve the meeting.

D. HUMPHREYS STORER, *Rec. Sec'y.*

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* A singular illustration of this is found in the manuscript reports of the town of Pepperell, Mass. The original detailed report states that there are fifteen *white lunatics* in the family of Charles E. Parker. The copyist, in his abstract, first wrote fifteen *blind*, when, perceiving his error; he crossed this record, and then wrote it fifteen *colored lunatics*, and so it stands in the Clerk's Office, at Boston.

MAY MEETING, 1845.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's room, Masonic Temple, Tremont street, on Thursday, May 29, 1845, at 10 o'clock, A. M.

The records of the last meeting having been read, the Corresponding Secretary reported the names of the gentlemen who have become members of the Society since the last stated meeting of the Counsellors.

Voted, To proceed to the choice of Officers for the ensuing year.

Drs. Otis, of Boston, Nichols, of Kingston, and Prescott, of Lynn, were appointed Scrutineers.

The following gentlemen were chosen to the several offices.

Jacob Bigelow, *President;* Edward Flint, *Vice President;* Samuel Morrill, *Corresponding Secretary;* D. Humphreys Storer, *Recording Secretary;* Augustus A. Gould, *Treasurer;* Charles G. Putnam, *Librarian.*

Censors. *For the First Medical District and the Society at large,* Drs. George W. Otis, Jr., Winslow Lewis, Jr., Anson Hooker, John D. Fisher, J. B. S. Jackson.

Second Medical District, Drs. B. T. Heywood, William Workman, Benjamin Pond, Joseph Sargent, John G. Metcalf.

Third Medical District, Drs. David Bemis, Jehiel Abbott, Addison S. Peck, Daniel Thompson, Alpheus F. Stone.

Fourth Medical District, Drs. Henry H. Childs, R. Fowler, A. G. Welch, R. Worthington, N. S. Babbitt.

Fifth Medical District, Alexander Read, Andrew Mackie, Joseph Haskell, Samuel Sawyer, Thomas Wilbur.

The following communication was read, and it was voted, to comply with the request of the petitioners to the Counsellors of the Massachusetts Medical Society.

The undersigned respectfully request that Censors may be chosen for the County of Barnstable, to be called the Sixth Medical District.

E. W. CARPENTER,
GEORGE ATWOOD.

The following gentlemen were elected Censors.

For the Sixth Medical District, Drs. Aaron Cornish, Henry Tuck, E. W. Carpenter, Thomas P. Jackson, George Atwood.

The Treasurer's report on the annual income and expenses of the Society, and on the state of the Permanent Fund, together with the report of the Auditing Committee, was read and accepted.

The report of the Committee appointed to examine the Library was read and accepted.

The report of the Censors for the First Medical District and for the Society at large, was read and accepted.

Drs. Homans, Storer, and J. B. S. Jackson, were chosen Committee on Publications.

Drs. Gould, Lewis, and Otis, were chosen Committee on Resignations.

Dr. John C. Dalton, of Lowell, was chosen to deliver the next annual address.

Dr. Thaxter, having declined re-election as Vice President, on motion of Dr. Homans it was

Voted, That the thanks of the Society be presented to Dr. Thaxter, for the able and courteous manner with which he has performed the duties of his office.

Dr. Strong having declined re-election as Treasurer, on motion of Dr. Buck,

Voted, That the thanks of the Counsellors be presented to Dr. Strong, our late Treasurer, for the faithful manner in which he has performed the duties of his office. And that in consideration of the arduous duties performed by him the past year, in that capacity, he be presented with one hundred dollars.

Voted, That Drs. Homans, Buck and Putnam, be a Committee to attend to the transferring of the Funds of the Society, from the late to the present Treasurer.

Voted, That the Committee on Publications be authorized to select and publish a sixteenth volume of the Library of Practical Medicine, to be issued at the next annual meeting, one copy to each District's Society's Library, one copy to each retired member, and one copy to each Fellow of the Society, who shall have paid his assessments to that time; and that the President of the Society be authorized to order the payment of not exceeding one half the cost of said volume, before its full completion, in case that it shall, in his judgment, and in the judgment of the Committee, seem expedient to do so. *Provided*, That the whole expense shall not exceed one thousand dollars.

D. HUMPHREYS STORER, *Rec. Sec'ry.*

The following gentlemen have been allowed to resign their fellowship: William B. Brown, Salem; Benjamin Osgood, Westfield; Joseph Sampson, Brewster; A. C. Smith, Salem; and Jonathan Wilde, of Braintree; and being more than sixty years of age, they have become retired members.

The following gentlemen have become Fellows of the Society.

By election. Alvan Hyde Turner, Tyringham; Noble B. Pickett, Great Barrington; Isaac Colby, Salem; Seba Carpenter, Attleboro'.

By signing the By-Laws in course. In 1844, James B. Dean, Taunton; Alanson Abbe, Roxbury; Joseph Poland, South Reading; Francis Leland, Milford; Alfred A. Lane, Boston; Augustus K. Gardner, Boston; J. Buckminster Brown, Boston; Calvin B. Pratt, Bridgewater; Benjamin P. Randall, Boston; Jasper H. York, Boston; Sereno E. D. Bumstead, Boston; Estes Howe, Boston; Enrigo Biundi, Salem; George B. Parks, Boston; Josiah G. Holland, Springfield; Thomas H. Stewart, Springfield; George Derby, Boston; John R. Wilbur, Springfield; Benjamin L. Ball, Boston; Josiah Curtis, Lowell; Thomas Womersley, Lowell.

Officers of the Massachusetts Medical Society.

ELECTED MAY, 1845.

JACOB BIGELOW, *President.*

EDWARD FLINT, *Vice President.*
SAMUEL MORRILL, *Corresponding Secretary.*
D. HUMPHREYS STORER, *Recording Secretary.*
AUGUSTUS A. GOULD, *Treasurer.*
CHARLES G. PUTNAM, *Librarian.*

CENSORS. *For the Society at large, and the First Medical District,* George W. Otis, Jr., Winslow Lewis, Jr., Anson Hooker, John D. Fisher, J. B. S. Jackson.

For the Second District, B. T. Heywood, William Workman, Benjamin Pond, Joseph Sargent, John G. Metcalf.

For the Third District, David Bemis, Jehiel Abbott, Addison S. Peck, Daniel Thompson, Alpheus F. Stone.

For the Fourth District, Henry H. Childs, Royal Fowler, A. G. Welch, R. Worthington, N. S. Babbitt.

For the Fifth District, Alexander Read, Andrew Mackie, Joseph Haskell, Samuel Sawyer, Thomas Wilbur.

For the Sixth District, Aaron Cornish, Henry, Tuck, E. W. Carpenter, Thomas P. Jackson, George Atwood.

Committee on Publications, J. Homans, D. H. Storer, J. B. S. Jackson.

Committee on Resignations, A. A. Gould, W. Lewis, Jr., G. W. Otis, Jr.

John C. Dalton, of Lowell, was chosen to deliver the next annual discourse.

Officers of District Medical Societies.

Essex Southern District Society. Abel L. Peirson, *President.* William Prescott, *Vice President.* Augustus A. Holyoke, *Treasurer.* William P. Richardson, *Librarian.* William Mack, *Secretary.*

Middlesex District Society. Nehemiah Cutter, *President.* Elisha Huntington, *Vice President.* J. D. Pillsbury, *Secretary.* J. P. Jewett, *Treasurer.* J. W. Scribner, *Librarian.*

Worcester District Society. Joseph Stone, *President.* William Workman, *Vice President.* C. C. Field, *Secretary.* Joseph Sargent, *Treasurer* and *Librarian.*

Hampshire District Society. Atherton Clark, *President.* Edward G. Ufford, *Vice President.* Hervey Orcutt, *Secretary.* C. A. Hall, *Treasurer.* Daniel Thompson, *Librarian.*

Southern District Society. Alexander Read, *President.* John Perkins, *Vice President.* Samuel Sawyer, *Secretary.* William A. Gordon, *Treasurer* and *Librarian.*

Barnstable District Society. Henry Tuck, *President.* John Harpur, *Vice President.* Franklin Dodge, *Secretary.* Alexander Poole, *Librarian.* T. P. Jackson, *Treasurer.*

Hampden District Society. John Smith, *President.* Josiah G. Holland, *Secretary, Treasurer* and *Librarian.*

Essex Northern District. George Cogswell, *President.* Benjamin Atkinson, *Vice President.* Martin Root, *Secretary.* Jeremiah Spofford, *Treasurer.*

APPENDIX.

1846.

PROCEEDINGS OF THE MASSACHUSETTS MEDICAL SOCIETY.

ANNUAL MEETING.

The Annual Meeting of the Massachusetts Medical Society was held on Wednesday, May 27th, at the Masonic Temple, at 10 o'clock, A. M.

The records of the last meeting of the Society, and of the several meetings of the Counsellors, were read.

The report of the Standing Committee, on the proper apportionment of Counsellors, was read and accepted.

Reports were then read from the Secretaries of the Essex South, Essex North, Hampden, Southern, Hampshire, Barnstable, and Berkshire District Medical Societies, stating the organization of the Societies, for the year 1846,—and nominating to the Society the Fellows who had been selected for their Counsellors.

Voted, To proceed to the choice of Counsellors.

Drs. Buck, of Boston, Stone, of Hardwick, Bell, of Somerville, Cutter, of Pepperell, and Metcalf, of Mendon, were appointed Scrutineers.

The Scrutineers reported the following gentlemen as having been elected Counsellors:

Essex South District. Drs. Andrew Nichols, A. L. Peirson, E. Hunt, George Choate, Joseph Reynolds, S. Johnson, A. Gould.

Worcester District Society. Drs. Stephen Batchelder, John Green, Edward Flint, Benjamin F. Heywood, Charles W. Wilder, John G. Metcalf, Pearson T. Kendall, Joseph Howe, William Workman, David S. C. H. Smith, T. R. Boutelle.

Berkshire District Society. Drs. Royal Fowler, H. H. Childs, A. G. Welch, Robert Worthington.

Hampshire District Society. Drs. Benjamin Barrett, A. Clark, H. Orcutt, C. A. Hall.

Southern District Society. Drs. Paul Spooner, Alexander Read, John Perkins, P. F. Doggett, L. M. Yale.

Barnstable District Society. Drs. Aaron Cornish, Elijah W. Carpenter, Thomas P. Jackson, George Atwood.

Hampden District Society. Drs. William Bridgman, Jehiel Abbott, David Bemis, James W. Smith.

Essex North District Society. Drs. Rufus Longley, Dean Robinson, Richard S. Spofford.

Franklin County. Drs. Stephen W. Williams, Christopher Dean, S. Deane.

Middlesex County. Drs. Timothy Wellington, Horatio Adams, Hiram Hosmer.

Middlesex District Society. Drs. Nehemiah Cutter, J. R. Dalton, Harlin Pillsbury, Daniel Mowe, Elisha Huntington, Peleg Bradley.

Norfolk County. Drs. Robert Thaxter, Jeremy Stimson, Eben'r. Alden, Eben'r. Stone, Henry Bartlett.

Nantucket County. Dr. Elisha P. Fearing.

Plymouth County. Drs. Ezekiel Thaxter, Paul L. Nichols, C. A. Lockerby.

Bristol County. Drs. Caleb Swan, M. R. Randall.

Suffolk County. Drs. George C. Shattuck, Jacob Bigelow, George Hayward, Enoch Hale, John Ware, S. D. Townsend, Z. B. Adams, John Homans, Woodbridge Strong, John Jeffries, G. W. Otis, Winslow Lewis, Jr., Samuel Morrill, J. V. C. Smith, D. H. Storer, John Flint, J. C. Hayden, J. D. Fisher, Charles G. Putnam, J. B. S. Jackson, Alexander Thomas, Ephraim Buck, A. A. Gould, Charles T. Jackson, M. S. Perry, George Bartlett, Martin Gay, Frederic A. Sumner.

The report of the Committee appointed at the last meeting of the Counsellors, to examine the Library and Cabinet, was read and accepted.

The report of the Committee appointed to audit the accounts of the Treasurer, was read and referred to the Counsellors.

The Committee appointed at the last meeting of the Counsellors, to report upon some proposed alterations of the By-laws, presented their report, which was read and referred to the Counsellors.

In pursuance of a recommendation of the Counsellors, adopted February 5th, 1845,—

Voted, To amend the XIIIth article of the By-laws, by adding thereto the following words:—"Whenever a member of the Massachusetts Medical Society, not a member of the board of Counsellors, shall be appointed on any Committee, by the Society at large, or by the Counsellors at any of their meetings, to report to the Counsellors, he shall be entitled to meet with the Committee, and take part in their discussions on the subject so committed, until it shall have been definitely disposed of."

The Treasurer's annual report on the income and expenses of the Society, and on the state of the Permanent Fund, together with the report of the Auditing Committee, was read and accepted; from which it appeared, that the amount received into the Treasury, during the year, ending May 27th, 1846,

was, ...	$2502 48
The amount of expenses, . . .	2028 69
Leaving a balance of . . .	$473 79

The amount of the Permanent Fund, which is invested in the Massachusetts Hospital Life Insurance Company, is $9258 11.

This report was by accident omitted at the Meeting of the Society, but was presented at the Counsellors' meeting.

A Committee, of Drs. Peirson, Hale and Homans, was appointed to consider what are the relations of those Fellows to the Society who have removed out of the State; and to report to the Counsellors.

At one o'clock the Annual Address was read by Dr. John O. Green, of Lowell.

On motion of Dr. Homans, it was

Voted, That the thanks of the Society be presented to Dr. Green for his able and interesting discourse.

Voted, To dissolve the meeting.

D. HUMPHREYS STORER, *Rec. Sec'ry.*

Proceedings of the Counsellors.

OCTOBER MEETING, 1845.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's room, Masonic Temple, Tremont street, on Wednesday, October 1st, 1845, at 11 o'clock, A. M.

A letter was read from Dr. Dalton, declining the invitation of the Counsellors to deliver the next annual address before the Society. Whereupon, Dr. John O. Green, of Lowell, was unanimously elected to perform that duty.

A Circular was received from the New York State Medical Society, recommending that a National Medical Convention of Delegates, from Medical Societies and Colleges in the whole Union, should be held in the city of New York, on the first Tuesday in May, in the year 1846, for the purpose of adopting some concerted action, to elevate the standard of Medical Education in the United States.

After some discussion, this Circular was referred to a Committee, consisting of Drs. Hale, J. V. C. Smith and Homans, to be reported upon at the next Council meeting.

Drs. Z. B. Adams, Homans, and Lewis, were appointed a Committee to report upon the expediency of altering the 37th By-law.

Drs. Jesse Merrill, of East Boston, and John McCrillis, of Lowell, were elected Fellows of the Society.

Dr. Thomas Chadbourne, of Concord, N. H., was chosen an honorary member of the Society.

Voted, To dissolve the meeting.

D. HUMPHREYS STORER,
Recording Secretary.

FEBRUARY MEETING, 1846.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's room, Masonic Temple, Tremont street, on Wednesday, February 4th, at 11 o'clock, A. M.

A letter was read from Dr. John O. Green, accepting the invitation of the Counsellors to deliver the next annual address before the Society.

The Committee, to whom was referred the communication from the Medical Society of the State of New York, presented their report, which was accepted, and the resolution accompanying it was adopted.

"That the Counsellors and Fellows of the Medical Society will ever receive with great respect and attention, any communication from so distinguished a body as the New York State Medical Society, and would gladly co-operate with their Society, in any efficient means for the benefit of the profession and the community. But the Committee have not been able to perceive in the proposed General Medical Convention, such a promise of good to be accomplished by it, as to induce them to recommend that our Society should take a part in it. Every measure, either of reform or improvement, must have reference to the actual condition of things in the community for which it is designed. This condition is very different in different parts of our country, so that one measure of improvement cannot be applicable to all; and it is better known to the several local medical institutions, than it possibly can be to any general convention. These local institutions either have, or in general they may have, the power to provide a remedy for existing evils, and to carry on and establish improvements; and to them, the Committee be-

lieve, we must look for the accomplishment of these objects.

The Committee therefore recommend that our Corresponding Secretary inform the New York State Medical Society, that the Counsellors respectfully decline sending delegates from the Massachusetts Medical Society, to the proposed Medical Convention, by transmitting a copy of this report to the Corresponding Secretary.

ENOCH HALE, } *Committee.*
JOHN HOMANS, }

Voted, That the Censors of the Sixth Medical District have authority to hold their meetings in Barnstable, on the first Wednesday in May and September, respectively, until the next revision of the By-laws.

The Committee appointed to report upon some proposed alterations of the By-laws, presented the following, which was accepted:

The Committee of the Counsellors chosen at the last meeting to consider and report upon the alterations requisite in the 37th by-law, beg leave to present the following

REPORT:

That long experience has proved to the Censors of the Society, and of the First Medical District, that in granting letters of approbation and license to persons, educated out of this Commonwealth, they have acted either without law, or contrary to the laws of this Society. In order, therefore, that the law and the practice in future may correspond, it has been proposed that the following alterations should be made in the 37th by-law. Your Committee therefore would recommend, that, instead of commencing, as it now does, with "Candidates for examination," the words "for letters of approbation, and license, or for," be inserted before the word examination; so that the By-law shall read as follows:

"Candidates for letters of approbation and license, or for examination," &c. Your Committee think the Counsellors will see, at a glance, the propriety of these alterations.

Again, as the law now stands, the Censors have found themselves frequently obliged to give letters of license to persons presenting diplomas, entirely satisfactory according to the law, but of very long standing. Now it would seem proper in all such cases that evidence should be presented to the Censors, that the persons so applying, should present evidence that they have continued to sustain the same literary and moral character, as when they received the diploma. For this purpose, therefore, your Committee recommend the following alteration in the same by-law, viz.: after the word "board," in the sixth line, that the following be inserted, "which application shall be accompanied by a certificate from some known and respectable person, acquainted with the applicant (unless he be personally known to some of the board to which he applies), that he is of fair standing in his profession, and of good moral character."

All which is respectfully submitted.

Z. B. ADAMS, *For the Committee.*

Dr. Lewis read a letter from Dr. J. A. Tarbell, applying for membership to the Society—and stating that he had great confidence in the efficacy of medicine, "especially when prepared and prescribed agreeably to the directions of Hahneman." This letter was referred to the Censors, with full power to settle the matter.

The Corresponding Secretary stated that a diversity of opinion existed in the minds of members as to the course necessary to be pursued to become a Fellow of the Society, as regards the signing of the By-laws, and wished that the subject might be examined and reported upon. Drs. Morrill,

Hale, and Lewis, were appointed a Committee to report upon this subject at the next meeting.

The resignation of Fellowship, of Drs. Noah Whitman, of North Bridgewater, J. D. Hedge, of Cambridge, and Isaac Hodges, of North Adams, was accepted by the Counsellors.

Voted, That Dr. H. P. Phillips, of North Adams, be allowed to resign his Fellowship, when he shall have paid his dues.

Drs. Z. B. Adams and Jeffries were appointed a Committee to examine the Treasurer's accounts.

Drs. Fisher and Thomas were appointed a Committee to examine the Library.

Drs. Abbott, Shurtleff, and Cabot, were appointed a Committee to furnish the members of the Society with vaccine virus at the next annual meeting.

Voted, To dissolve the meeting.

D. HUMPHREYS STORER, *Rec. Sec'ry.*

MAY MEETING, 1846.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's room, Masonic Temple, Tremont street, on Tuesday, May 28th, 1846, at 10 o'clock, A. M.

The records of the last meeting having been read, the Corresponding Secretary reported the names of the gentlemen, who have become members of the Society since the last stated meeting of the Counsellors.

Voted, To proceed to the choice of officers for the ensuing year.

Drs. Thomas, Gay, and Otis, were appointed Scrutineers.

The following gentlemen were chosen to the several offices.

Jacob Bigelow, *President;* Edward Flint, *Vice President;* D. Humphreys Storer, *Corresponding Secretary;* Winslow Lewis, *Recording Secretary;* Alex. Thomas, *Librarian.*

Dr. Lewis declined serving, and Dr. Putnam was elected Recording Secretary.

Upon motion of Dr. Hale, the thanks of the Counsellors were presented to Dr. Morrill, for his faithful and assiduous services in the various offices he has heretofore held.

Censors. *For the First Medical District, and the Society at large,* Drs. George W. Otis, Jr., Winslow Lewis, Jr., Anson Hooker, John D. Fisher, J. B. S. Jackson.

For the Second Medical District, B. F. Heywood, William Workman, Benjamin Pond, Joseph Sargent, John G. Metcalf.

For the Third Medical District, David Bemis, Jehiel Abbott, Addison S. Peck, Daniel Thompson, James Dean.

For the Fourth Medical District, Henry H. Childs, A. G. Welch, R. Worthington, N. S. Babbitt, G. Guiteau.

For the Fifth Medical District, Alexander Read, Andrew Mackie, Joseph Haskell, Samuel Sawyer, Thomas Wilbur.

For the Sixth Medical District, Aaron Cornish, E. W. Carpenter, Thomas P. Jackson, George Atwood, J. Leonard, Jr.

The report of the Censors, for the First Medical District, and for the Society at large, was read and accepted.

Drs. Homans, Storer, and J. B. S. Jackson, were chosen Committee on Publications.

Drs. Gould, Lewis, and Otis, were chosen Committee on Resignations.

Dr. John Ware, of Boston, was chosen to deliver the next annual address.

The Committee to whom was referred the correspondence respecting the admission of members to the Massachusetts Medical Society, presented the following report, which was accepted:

"That the power conferred by the By-laws, on the Corresponding Secretary, and in certain cases upon the Counsellors, to admit members, is clearly restricted to the admission of such as are already Licentiates of the Society, or are entitled to the same privileges as Licentiates by having received a medical degree at one of the Colleges in the Commonwealth, Harvard University, and the Berkshire Medical Institution. The authority to examine the credentials of those, who have been educated and examined out of the State, is expressly granted, both by the Law of the Commonwealth, and the By-laws of the Society, to the Censors of the Society, and to them alone. The Counsellors, either individually, or as a board, have no power to interfere with it. They may elect Fellows to the Society, but they cannot control the duties of the Censors.

The proper course for a physician, educated and licensed elsewhere, who removes into the State, is plainly marked out by the By-laws. He presents his credentials either to the Censors for the Society at large, or to those of the District in which he proposes to reside; and if they are found to be satistactory in character, and from an institution that requires a medical education before examination equal to that demanded by this Society, he is licensed by them. He is thus entitled to all the privileges of a recognized practitioner of medicine in the Commonwealth, and may become a Fellow of this Society, or not, as he pleases. Until he has done this, he has no claim whatever to admission to the Society, and no officer of the Society has any authority to admit him. Nor is any Fellow of the Society authorized to consult with him, or in any way to "aid or abet" him as a regular practitioner of medicine.

This state of things is not peculiar to ourselves: some analogous provision is found in other States, and other countries, probably in every community, where there is a sufficient organization of medical men to enforce it. Even in general society a stranger, however elevated his station or worthy his character, is not expected to be received without a regular introduction. When the object of the stranger is to obtain a general confidence, it is not less for his advantage, than it is for the protection of the community he enters, that there should be a recognized tribunal authorized to receive him, and to certify conclusively the sufficiency of the evidence of his claims to confidence. Such a tribunal is our board of Censors; and the Committee are not able to perceive any just cause of offence in a provision so general and so necessary as the requirement of our By-laws in regard to it.

SAMUEL MORRILL,
ENOCH HALE,
WINSLOW LEWIS, Jr. } *Committee.*

The following gentlemen have become Fellows of the Society since the last meeting:

Isaac Colby, Salem; Elton R. Smilie, South Reading; Mortimer B. Tappan, Boston; Ebenezer C. Richardson, Ware; George Cutler, Charlestown; Albert A. Hassard, Boston; Kimball Hill, Boston; John B. Walker, Boston; Samuel Kneeland, Jr., Boston; Samuel F. Green, Worcester; John McCrillis, Lowell; Jesse Merrill, East Boston; George Moody, Georgetown; Henry A. Barrett, Concord; James A. Tenney, Worcester; Robert W. Newell, Boston; Samuel Merritt, Plymouth; James Hyndman, Boston; Robert White, Boston; John Bachelder, Sandwich; Jonathan Brown, Wilmington; Charles W. Calkins, Boston; George H. Lyman, Boston; Absalom P. King, Blackstone; Horace P. Wakefield, Reading; Charles W. Gleason, Braintree; Josiah Atkinson, Wrentham; Merrit F. Potter, Charlemont;

George W. Burdett, Lancaster; Josiah Ball, Fall River; George S. Jones, Boston; Samuel Hamblen, Boston; Nathaniel Downes, Boston; Hiram Houlton, Truro; Henry Wigand, Salem; Elbridge K. Mitchell, West Newton; James H. Trask, Boston; Thomas L. Chapman, Longmeadow; Charles A. Proctor, Lunenburg; Eleazer P. Wells, Boston; Eugene E. Braun, Charlestown; Elie Laceste, Boston; Louis L. L. Desaulniers, South Boston; Pierre B. Mignault, Boston; Samuel F. Green, Worcester; G. Washington Doane, Hyannis; William W. Billings, Springfield; Moses C. Greene, Boston; Samuel F. Dickinson, Pittsfield; Royal Sibley, Warren; John Little, Lowell; Joel Spalding, Lowell; E. Whitney Blake, Boston; Moses P. Greenleaf, Newton; Joseph Hagar, East Boston; Joseph E. Bartlett, Somerville; Henry Orne White, Salem; Walter H. Kimball, Andover; Walter C. Chandler, South Natick; Luther B. Morse, Lowell; George H. Whitmore, Roxbury; Andrew D. Blanchard, Medford; Nathan B. Edwards, Chelmsford; Adino B. Hall, Kingston; James L. Wellington, Swansea.

Voted, That the Treasurer take the necessary measures to collect all assessments of more than three years standing, except in cases where he has reason to believe the delinquent is unable to pay them; and in such cases that he be authorized, with the concurrence of the President, to remit the whole or part thereof.

Drs. Hale, Alden, and Townsend, were appointed a Committee to revise the By-laws of the Society, preparatory to a new edition.

Voted, That one copy of all the publications of the Society be allowed a general circulation among its members.

Dr. Henry Holland, of London, was elected an honorary member of the Society.

Dr. Morrill Robinson, of Middleboro', was elected a Fellow.

The Treasurer, in obedience to the XXIIId order of the Society, reported the names of all delinquent members from whom assessments are due for four or more years.

C. G. PUTNAM,
Recording Secretary.

Officers of the Massachusetts Medical Society.

ELECTED MAY, 1846.

JACOB BIGELOW, *President.*

EDWARD FLINT, *Vice President.*

D. H. STORER, *Corresponding Secretary.*

C. G. PUTNAM, *Recording Secretary.*

AUGUSTUS A. GOULD, *Treasurer.*

ALEXANDER THOMAS, *Librarian.*

CENSORS. *For the Society at large, and the First Medical District,* Drs. George W. Otis, Jr., Winslow Lewis, Jr., Anson Hooker, John D. Fisher, J. B. S. Jackson.

For the Second District, B. F. Heywood, William Workman, Benjamin Pond, Joseph Sargent, John G. Metcalf.

For the Third District, David Bemis, Jehiel Abbott, Addison S. Peck, Daniel Thompson, James Dean.

For the Fourth District, Henry H. Childs, A. G. Welch, R. Worthington, N. S. Babbitt, G. Guiteau.

For the Fifth District, Alexander Read, Andrew Mackie, Joseph Haskell, Samuel Sawyer, Thomas Wilbur.

For the Sixth District, Aaron Cornish, E. W. Carpenter, Thomas P. Jackson, George Atwood, J. Leonard, Jr.

Committee on Publications, Drs. Homans, Storer, and J. B. S. Jackson.

Committee on Resignations, Drs. Gould, Lewis, and Otis.

Dr. John Ware, of Boston, was chosen to deliver the next annual address.

Officers of District Medical Societies.

Essex Southern District Society. A. L. Peirson, *President.* George Choate, *Vice President.* Joseph Farnum, *Treasurer.* E. B. Peirson, *Librarian.* Wm. Mack, *Secretary.*

Berkshire District Society. Royal Fowler, *President.* M. L. Sabin, *Vice President.* C. Guiteau, *Secretary.* Selden Jennings, *Treasurer, Librarian* and *Cabinet Keeper.*

Hampshire District Society. Daniel Thompson, *President,* E. G. Ufford, *Vice President.* J. W. Smith, *Secretary.* C. A. Hall, *Treasurer.* James Thompson, *Librarian.*

Southern District Society. Alexander Read, *President.* John Perkins, James Haskell, *Vice Presidents.* Samuel Sawyer, *Secretary.* William A. Gordon, *Treasurer* and *Librarian.*

Barnstable District Society. Aaron Cornish, *President.* John Harpur, *Vice President.* Thomas P. Jackson, *Secretary.* E. W. Carpenter, *Treasurer.* Alexander Poole, *Librarian.*

Hampden District Society. William Bridgman, *President.* J. G. Holland, *Secretary, Treasurer* and *Librarian.*

Essex North District. George Cogswell, *President.* Benjamin Atkinson, *Vice President.* Martin Root, *Secretary.* Jeremiah Spofford, *Treasurer* and *Librarian.*

Middlesex District Society. Nehemiah Cutter, *President.* Elisha Huntington, *Vice President.* John D. Pillsbury, *Secretary.* Jeremiah P. Jewett, *Treasurer.* Isaac W. Scribner, *Librarian.*

APPENDIX.

1847.

PROCEEDINGS OF THE MASSACHUSETTS MEDICAL SOCIETY.

ANNUAL MEETING.

The Annual Meeting of the Massachusetts Medical Society was held on Wednesday, May 26th, at the Masonic Temple, at 10 o'clock, A. M.

The records of the last meeting of the Society, and of the several meetings of the Counsellors, were read.

Voted, To proceed to the choice of Counsellors.

Drs. Cutter, of Pepperell, Hooker, of East Cambridge, Hosmer, of Watertown, Gordon, of Boston, Z. B. Adams, of Boston, and Green, of Lowell, were appointed a Committee to collect and count the ballots.

The report of the Standing Committee, to ascertain the proper apportionment of Counsellors, was read, and it was voted to apportion according to the principle of allowing one for every eight Fellows, and one for every successive 4-8ths in each District or County.

The report of the Treasurer, on the annual receipts and expenditures of the Society, and likewise the report of the

Auditing Committee, were read and accepted; from which it appeared, that the receipts, during the year ending May 26th, 1847 were, - - - - - $1997 79
The expenditures were, - - - 1797 12

Leaving a balance of - - - $200 67

The amount of the Permanent Fund, which is invested in the Massachusetts Hospital Life Insurance Company, is $9721 02.

The report of the Committee on the Library was read and accepted.

The report of the Committee on the revision of the By-laws, preparatory to a new edition, which was presented at the February meeting of the Counsellors, and by them referred to the Society, and to which the following resolution was appended, was read and accepted :—

Resolved, That the Counsellors recommend to the Society, at the next Annual Meeting, to amend the By-Laws, as follows :

1. To alter the 8th By-law at the beginning, so that it may read as follows :

VIII. Any fellow or retired member may be expelled from the Society, by a vote of two-thirds of the members present at any annual meeting, upon charges of the following description ; provided that the charge or charges against him have first been considered by the Counsellors, and been brought forward by them,—or have been made before the Society at a preceding annual meeting, &c.

2. To alter the 9th and 10th By-laws, to read as follows :

IX. Any person who is engaged in the practice of medicine or surgery in this Commonwealth, not being a fellow or retired member or licentiate of this Society, nor a Doctor of medicine of Harvard University, or of the Berkshire Medical

Institution, shall be deemed, by the fellows of this Society, an irregular practitioner; likewise any one who has been expelled from this Society, or who has withdrawn himself from it without the permission of the Counsellors, and any licentiate or doctor of medicine, not a fellow, who has been deprived of his privileges by vote of the Society; and it shall be unlawful for any fellow or retired member of this Society, in his professional capacity, to advise or consult with any such irregular practitioner, or in any way to abet or assist him as a practitioner of medicine or surgery. For any breach of this By-law, a fellow or retired member of the Society shall be disqualified for one year from giving his vote at any meeting of the Society, and of the District Society of which he may be a member; he shall also be liable to the censure and reprimand of the Counsellors, and in aggravated cases to expulsion.

X. If any fellow or retired member of this Society shall recommend by public advertisement, or advertise for sale any medicine the composition of which he keeps a secret, or shall in like manner offer to cure any disease by any such secret medicine, or by any secret process, he shall be liable to expulsion, or to such other penalty as the Society at the Annual Meeting may think proper to inflict. If any licentiate of the Society, or Doctor of medicine of Harvard University, or the Berkshire Medical Institution, not a fellow, shall violate either this or the preceding By-law, he shall be liable to be deprived of the privileges of a licentiate, and to be declared an irregular practitioner.

3. To substitute the following addition to the 13th By-law, in place of that which was adopted at the last Annual Meeting.

Any fellow, who shall be appointed, either by the Society or the Counsellors, on a Committee to report to the Counsellors, shall be authorized to attend any meeting of the Coun-

sellors, at which the report of such Committee is acted on, and to take part in the discussion of it, until it is definitively disposed of.

4. To strike out of the 14th By-law the words, 'as designated in the act of the Commonwealth of February 19, 1819, entitled an act in addition to an act, entitled an act regulating the practice of Physic and Surgery,' and insert in their place the words, 'The First Medical District shall include the counties of Suffolk, Essex, Middlesex, Norfolk, and Nantucket; the second district shall include the county of Worcester; the third district shall include the counties of Hampshire, Franklin, and Hampden; the fourth district shall include the county of Berkshire; the fifth district shall include the counties of Bristol, Plymouth, and Dukes County; and the sixth district shall include the county of Barnstable.'

5. To insert in the 29th By-law the following words: 'The Censors of the fifth Medical District at New Bedford, on the second Wednesday in May; the Censors of the sixth district, at on

6. To alter the closing sentence of the 36th By-law, so as to read—'the second section of the preceding By-law.'

7. To strike out of the 40th By-law the words, 'agreeably to the second section of the law of this Commonwealth, passed February 19, 1819, entitled an act, in addition to an act regulating the practice of Physic and Surgery,' and insert the words, 'in accordance with the provisions of the Revised Statutes, Chap. II, Section 7.'

8. To strike out of the 40th By-law, the words, 'or read the books required by this Society to be read by medical students.'

9. In the 42d By-law, to erase the word 'now' in the 8th line of page 47.

10. To repeal the 56th, 57th and 58th By-laws.

The motion of Dr. John Ware, made at the February meeting of the Counsellors, 'That the Counsellors recommend to the Society an amendment of the By-laws, so as to provide that the Annual Meeting of the Society shall be held out of the city of Boston, whenever the Society shall so direct by a special vote to that effect,' was read and rejected.

On motion of Dr. John Flint, the above vote was reconsidered, and finally the amendment proposed by Dr. Ware was accepted.

The Committee, appointed to collect and count the votes, reported the following Fellows, as having been elected Counsellors:

Essex South District Medical Society. Drs. A. L. Peirson, Samuel Johnson, George Choate, Abraham Gould, Asa Story, Benjamin Cox, William Mack.

Essex North District Medical Society. Drs. Jeremiah Spofford, John Appleton, Richard Herbert.

Worcester District Medical Society. Drs. S. Bachelder, J. Green, E. Flint, B. F. Heywood, C. W. Wilder, J. G. Metcalf, P. T. Kendall, J. Stone, W. Workman, D. S. C. H. Smith, T. R. Boutelle.

Berkshire District Medical Society. Drs. Royal Fowler, H. H. Childs, A. G. Welsh, Robert Worthington.

Hampshire District Medical Society. Drs. Atherton Clark, Hervey Orcutt, C. A. Hall, Artemas Bell.

Southern District Medical Society. Drs. Paul Spooner, Alexander Read, John Perkins, Perez F. Doggett, Le Roy M. Yale.

Barnstable District Medical Society. Drs. Aaron Cornish, E. W. Carpenter, Thomas P. Jackson.

Hampden District Medical Society. Drs. William Bridgman, David Bemis, James M. Smith, Alvan Smith.

Middlesex District Medical Society. Drs. N. Cutter, E. Huntington, J. C. Dalton, H. Pillsbury, G. Kimball, J. W. Graves, A. B. Bancroft, Josiah Bartlett.

Bristol County. Drs. Caleb Swan, M. R. Randall.

Franklin County. Drs. Stephen W. Williams, Christopher Dean, James Deane.

Nantucket County. Dr. Elisha P. Fearing.

Plymouth County. Drs. Ezekiel Thaxter, Paul L. Nichols, Winslow Warren.

Middlesex County. Drs. T. Wellington, Z. Howe, J. C. Dalton, J. Bartlett, J. O. Green, A. Hooker, J. S. Hurd, C. F. Chaplin, S. Whitney, H. Adams, H. Hosmer, L. V. Bell, J. W. Bemis, Morrill Wyman.

Norfolk County. Drs. Robert Thaxter, J. Stimson, Ebenezer Alden, Ebenezer Stone, Henry Bartlett, A. Howe, Jonathan Ware.

Suffolk County. Drs. G. C. Shattuck, Z. B. Adams, J. Jeffries, W. Strong, W. J. Walker, S. Morrill, W. Lewis, Jr., J. V. C. Smith, G. W. Otis, Jr., D. H. Storer, J. Flint, C. H. Stedman, D. Harwood, W. G. Hanaford, H. B. C. Greene, J. B. S. Jackson, Alexander Thomas, E. Palmer, Jr., M. S. Perry, J. Odin, Jr., Geo. Bartlett, Martin Gay, H. G. Clark, H. I. Bowditch, H. Dupee, Henry Dyer.

At one o'clock the Annual Address was read by John Ware, M. D., of Boston.

On motion of Dr. John Homans, the thanks of the Society were presented to Dr. John Ware, for his able, candid, and interesting discourse.

Voted, To dissolve the meeting.

The Fellows of the Society then proceeded to Faneuil Hall, and dined together.

C. G. PUTNAM, *Recording Secretary.*

Proceedings of the Counsellors.

OCTOBER MEETING, 1846.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's room, Masonic Temple, Tremont street, on Wednesday, October 7th, 1846, at 11 o'clock, A. M.

A letter was read from Messrs. Wiley and Putnam, in behalf of the British Museum, requesting a copy of the Society's Publications. Whereupon it was,

Voted, That the Librarian collect and cause to be bound as complete a set as possible, to be presented to that Institution.

Voted, To dissolve the meeting.

C. G. PUTNAM, *Recording Secretary.*

FEBRUARY MEETING, 1846.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's room, Masonic Temple, Tremont street, on Wednesday, February 3, 1847, at 11 o'clock, A. M.

The Committee on Revision of the By-laws made a report, recommending several alterations; referred to the Society.

The Committee, appointed to consider what are the relations to the Society of those Fellows who have removed out of the State, recommended to the Counsellors the passage of the following resolution, which was adopted.

Resolved, 'That it is competent for any Fellow of this Society, who has paid his annual assessments, on removing to another State, to retain his Fellowship in the Massachusetts Medical Society.'

A. L. PEIRSON,
ENOCH HALE,
JOHN HOMANS,
} *Committee.*

A letter was received from Dr. Henry Holland of London, signifying his acceptance of Honorary Membership of the Society.

Letters were received from Dr. Greene, of North Falmouth, on Statistics, and from Dr. Williams, of Deerfield, on the appointment of delegates to the Medical Convention, to be held in Philadelphia, in May next.

Voted, To send delegates to the Medical Convention; ten from the Society at large, and one from each district.

The following gentlemen were nominated by the President, and accepted by the Counsellors:

From the Society at large. Drs. Williams, of Deerfield, Hale, of Boston, Huntington, of Lowell, Fowler, of Stockbridge, Peirson, of Salem, Smith of Boston, Sargent of Worcester, Z. B. Adams, of Boston, Holmes, of Boston, and G. C. Shattuck, Jr., of Boston.

From the Medical Districts. Drs. Bartlett, of New Bedford, Carpenter, of Chatham, and W. Bridgman, of Springfield.

A certified copy of a petition of the Berkshire Medical District Society, addressed to the Legislature, having been read,

Voted, That a Committee be appointed to report upon the subject of the petition.

Voted, That the President, and Drs. Hale, and Hayward, be this Committee.

It was moved by the President, that when the permanent fund of the Society shall amount to ten thousand dollars, the

interest or income of said fund shall be devoted to the publication of a Journal, to be issued one or more times in a year, consisting chiefly of such selected articles as may be adapted to convey a knowledge of the progress of Medical Science; and containing also the proceedings and customary publications of the Society, for the current year—said Journal to be under the charge of the Publishing Committee.

Voted, That the motion be referred to the Committee on Publications.

On motion of Dr. John Ware, it was

Voted, That a copy of Copland's Dictionary, procured by the Society for distribution among its Fellows, be transmitted to Dr. Copland.

On motion of Dr. John Ware, it was

Voted, That the Counsellors recommend to the Society to amend the By-laws, so as to provide that the Annual Meeting shall be held out of the city of Boston, whenever the Society shall so direct by a special vote to that effect, by inserting in the first By-law, at the end of the fifth line, the words, 'unless the Society shall by a vote, at the preceding Annual Meeting, appoint some other place of meeting;' and in the eleventh By-law, in the fourth line, the words, 'either in Boston or.'

On motion of Dr. Hale, it was

Voted, That the Corresponding and Recording Secretaries, together with the Treasurer and Librarian, be a Committee, to report a plan for the more secure preservation of the Society's books and papers.

A communication was received from the Librarian, stating that he had been unable to form a sufficiently complete set of the Transactions of the Society for presentation to the British Museum.

Voted, To dissolve the meeting.

C. G. PUTNAM, *Recording Secretary.*

MAY MEETING, 1847.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's room, Masonic Temple, Tremont street, on Thursday, May 27th, 1847, at 10 o'clock, A. M.

The records of the Annual Meeting of the Society, and of the last meeting of the Counsellors, were read.

The report of the Censors for the First Medical District, and the Society at large, was read.

The Committee on Publications, to which was referred the motion made at the meeting of the Counsellors in February, in regard to the publication of a Journal, offered a report, with the following resolutions, which were read and accepted.

Resolved, That from and after the first day of January next, the Committee on Publications be authorized, in lieu of the 'Medical Communications,' and the 'Library of Practical Medicine,' to issue a quarterly publication, to be called, 'The Journal of Practical Medicine of the Massachusetts Medical Society,' in which shall be published the proceedings of the Society, and of the Counsellors, and the Annual Discourse, unless otherwise ordered, and such original communications as the Committee, or the editor employed by them, shall approve; but whose main design shall be to furnish to the members of the Society a succession of valuable essays in practical medicine, selected from the best foreign journals; it being understood that the Committee shall be at liberty to republish, or procure at their discretion, any entire works of suitable extent, either as a part of said Journal, or as a substitute for a portion of it, whenever they shall judge it expedient; and the Committee shall be authorized to appoint one of their own number, or some other suitable person, to act as the editor of the proposed Journal, under their supervision

and direction, and to assign to him such moderate compensation as the means of the Society, and the duties to be performed, may render proper: provided that the whole expense of said Journal shall not exceed fifteen hundred dollars a year.

Resolved, That the Journal be distributed gratuitously, one copy to each retired member, and one copy to each Fellow of the Society, from whom no more than one assessment shall have been due at the next preceding Annual Meeting in each year; provided, that new members shall not be entitled to it, until the first day of January subsequent to the time when they become Fellows.

Resolved, That the Permanent Fund of the Society shall be fixed at ten thousand dollars, and any surplus exceeding that amount, and the annual income of the fund, shall be appropriated to the support of the 'Quarterly Medical Journal,' and the balance of the cost of said Journal shall be provided for out of the ordinary income of the Society.

Voted, To proceed to the choice of officers for the ensuing year.

Drs. Henry I. Bowditch, of Boston, and Anson Hooker, of Cambridge, were appointed a Committee to collect, sort, and count the votes.

The following gentlemen were elected to the several offices:

Zadok Howe, of Billerica, *President;* Edward Flint, of Leicester, *Vice President;* John B. S. Jackson, of Boston, *Corresponding Secretary;* Alex. Thomas, of Boston, *Recording Secretary;* Zabdiel B. Adams, of Boston, *Treasurer;* Martin Gay, of Boston, *Librarian.*

Censors. *For the First Medical District, and the Society at large*, Drs. George W. Otis, Jr., Winslow Lewis, Jr., Anson Hooker, John D. Fisher, John B. S. Jackson.

For the Second Medical District, Drs. Benjamin F. Heywood, Benjamin Pond, William Workman, Joseph Sargent, John G. Metcalf.

For the Third Medical District, Drs. David Bemis, Jehiel Abbott, Edward G. Ufford, Samuel B. Woodward, James Deane.

For the Fourth Medical District, Drs. Henry H. Childs, Asa G. Welsh, Robert Worthington, Nathan S. Babbitt, Corridon Guiteau.

For the Fifth Medical District, Drs. Alexander Read, Andrew Mackie, Joseph Haskell, Samuel Sawyer, Thomas Wilbur.

For the Sixth Medical District, Drs. Aaron Cornish, Elijah W. Carpenter, Thomas P. Jackson, George Atwood, Jonathan Leonard. Jr.

Committee on Publications, Drs. John B. S. Jackson, D. Humphreys Storer, Oliver W. Holmes.

Committee on Resignations, Drs. Zabdiel B. Adams, Winslow Lewis, George W. Otis.

Dr. Luther V. Bell, of Somerville, was chosen to deliver the next annual discourse.

On motion of Dr. Samuel Morrill, of Boston, it was

Voted, That the thanks of the Counsellors be presented to Jacob Bigelow, M. D., their late President, for the uniformly courteous, able, and impartial manner, in which he has presided over their deliberations.

The following gentlemen have become retired Members of the Society, since the last Annual Meeting: Christopher Deane, of Colerain, John Smith, of Wales, Calvin Briggs, of Marblehead.

The following gentlemen have become Fellows of the Society since the last Annual Meeting.

By Election. William Comstock, of Boston; Nathan Adams of Springfield; P. L. B. Stickney of West Springfield.

By signing the By-laws in course. Horace Stacy, Boston; Samuel H. Gould, Brewster; Daniel V. Folts, Boston; Henry A. Gerry, Townsend; David M. Parker, Boston; William R. Lawrence, Boston; Daniel Holt, Lowell; David Gill, Jr., Marblehead; Thomas J. W. Kennedy, Boston; John B. Alley, Boston; Hiram L. Chase, Boston; John A. Tarbell, Boston; E. A. W. Harlow, Cambridge; G. A. Warren, Boston; H. Osgood Stone, Boston; Joseph C. Sanborn, Reading; George W. Denison, Springfield; Charles D. Cleveland, Boston; Samuel F. Avery, Charlemont; H. D. Train, Medford; William D. Lamb, Lawrence; Edward Stimson, Boston: Henry Bryant, Boston; Rufus Shackford, Lowell; D. D. Smith, Gloucester; F. S. Ainsworth, Boston; Horace Wason, Manchester; Edward H. Clarke, Boston; John Hartwell, Boston; Robert Dixon, Boston; Daniel L. Gibbens, Jr., Weymouth; Ira W. Tobie, Boston; William B. Bugbee, Quincy; Joseph Underwood, Charlestown; James F. Harlow, Cambridge; Dennis McGowan, Boston; Robert C. Rees, Boston; M. Aurelius Moore, Boston; Charles Eastham, Boston; John W. Hinckley, Boston; Daniel Chaplin, Cambridge; John J. McGowan, Boston; B. V. Gersdoff, Boston; Maurice O. H. Reedy, Boston; Benjamin F. Wing, Boston; Benjamin Cushing, Dorchester; Washington Ayer, Lawrence; William F. Channing, Boston; Levi Goodenough, Sudbury; Charles F. Heywood, Boston; Francis Collamore, Braintree; Charles Gibbs, Lawrence.

A. THOMAS, *Recording Secretary.*

Officers of the Massachusetts Medical Society,

ELECTED MAY, 1847.

ZADOK HOWE, *President.*

EDWARD FLINT, *Vice President.*

JOHN B. S. JACKSON, *Corresponding Secretary.*

ALEX. THOMAS, *Recording Secretary.*

ZABDIEL B. ADAMS, *Treasurer.*

MARTIN GAY, *Librarian.*

CENSORS. *For the Society at large, and the First Medical District,* Drs. George W. Otis, Jr., Winslow Lewis, Jr., Anson Hooker, John B. S. Jackson, John D. Fisher.

For the Second District, Benj. F. Heywood, Benjamin Pond, William Workman, Joseph Sargent, John G. Metcalf.

For the Third District, David Bemis, Jehiel Abbott, Edward G. Ufford, Samuel B. Woodward, James Deane.

For the Fourth District, Henry H. Childs, Asa G. Welsh, Robert Worthington, Nathan S. Babbitt, Corridon Guiteau.

For the Fifth District, Alexander Read, Andrew Mackie, Joseph Haskell, Samuel Sawyer, Thomas Wilbur.

For the Sixth District, Aaron Cornish, Elijah W. Carpenter, Thomas P. Jackson, George Atwood, Jonathan Leonard, Jr.

Committee on Publications, Drs. John B. S. Jackson, D. Humphreys Storer, Oliver W. Holmes.

Committee on Resignations, Drs. Zabdiel B. Adams, Winslow Lewis, Jr , George W. Otis, Jr.

Dr. Luther V. Bell, of Somerville, was chosen to deliver the next annual address.

Officers of District Medical Societies.

ELECTED 1847.

Barnstable District Society. John Harpur, *President.* Jonathan Leonard, Jr., *Vice President.* Thomas P. Jackson, *Secretary.* Elijah W. Carpenter, *Treasurer.* Alexander Poole, *Librarian.*

Berkshire District Society. No return.

Essex North District Society. Benjamin Atkinson, *President.* David Mighill, *Vice President.* Martin Root, *Secretary.* Jeremiah Spofford, *Treasurer* and *Librarian.*

Essex South District Society. Abel L. Peirson, *President.* George Choate, *Vice President.* Joseph Farnum, *Treasurer.* Edward B. Peirson, *Librarian.* William Mack, *Secretary.*

Hampden District Society. William Bridgman, *President.* Thomas L. Chapman, *Secretary, Librarian* and *Treasurer.*

Hampshire District Society. Daniel Thompson, *President.* Edward G. Ufford, *Vice President.* J. W. Smith, *Secretary.* Charles A. Hall, *Treasurer.* James Thompson, *Librarian.*

Middlesex District Society. Nehemiah Cutter, *President,* Elisha Huntington, *Vice President.* John D. Pillsbury, *Secretary.* Jeremiah P. Jewett, *Treasurer.* Isaac W. Scribner, *Librarian.*

Southern District Society. Andrew Mackie, *President.* John Perkins, *Vice President.* Joseph Haskell, 2d *Vice President.* Samuel Sawyer, *Secretary.* Clement F. Shiverick, *Treasurer* and *Librarian.*

Worcester District Society. No return.

APPENDIX.

1848.

PROCEEDINGS OF THE MASSACHUSETTS MEDICAL SOCIETY.

ANNUAL MEETING.

The Annual Meeting of the Massachusetts Medical Society was held at the Masonic Temple, Tremont Street, Boston, on Wednesday, the 31st of May, A. D. 1848.

The records of the proceedings of the Society, at its last Annual Meeting, and the records of the Counsellors' Meetings, during the past year, were read.

Voted, to proceed to the choice of Counsellors.

Drs. Adams, of Waltham, Dale, of Boston, Jarvis, of Dorchester, Bemis, of Charlestown, and Graves, of Lowell, were appointed a Committee to collect, count, and assort the votes; to this committee were subsequently added Drs. Alden, Bowditch, Nelson, Gould, and Hill.

The report of the Committee on the apportionment of Counsellors, was read and accepted. The report on the Treasurer's account, and upon the permanent fund of the Society, was read and accepted; from which it appears that

The receipts of the year have been	$1351 87
Expenditures during the year,	1138 01
Leaving a balance of	$213 86

The permanent fund, which is in the Hospital Life Insurance Company, is, to 1st January, 1848, $10,207 07

The report of the Committee on the Library was read and accepted.

The application of the Censors of the Sixth Medical District, to alter the time of the meeting of the board, which had been presented to the Counsellors, and by them referred to the Society, was received; and thereupon it was voted: To amend By-law XXIX., by filling the blank with the words, "the first Tuesday of May and September."

The Committee to collect count and assort the votes for Counsellors reported the following gentlemen as having been chosen:

Essex South District Society. Drs. A. L. Peirson, George Choate, A. Story, J. Lamson, Samuel Johnson, A. Gould, E. Hunt, E. S. Phelps.

Essex North District Society. Drs. Rufus Longley, R. S. Spofford, Richard Herbert.

Worcester District Society. Drs. S. Batchelder, E. Flint, C. W. Wilder, P. T. Kendall, Benjamin Pond, J. Green, B. F. Haywood, J. G. Metcalf, J. Stone, T. R. Boutelle, C. C. Field.

Berkshire District Society. Drs. Royal Fowler, Asa G. Welch, Henry H. Childs, Selden Jennings.

Hampshire District Society. Drs. E. G. Ufford, D. Thompson, A. S. Peck, C. A. Hall.

Southern District Society. Drs. W. C. Whittredge, Samuel Sawyer, Foster Hooper, Andrew Mackie, Joseph Haskell.

Barnstable District Society. Drs. Aaron Cornish, Alexander Poole, Samuel H. Gould, Jonathan Leonard, Jr.

Hampden District Society. Drs. Jesse W. Rice, Cyrus Bell, Nathan Adams, Thomas L. Chapman.

Middlesex District Society. Drs. John C. Dalton, Nehemiah Cutter, G. Kimball, A. B. Bancroft, E. Huntington, H. Pillsbury, J. W. Graves, Josiah Bartlett.

Franklin County. Drs. S. W. Williams, James Deane, George W. Hamilton.

Middlesex County. Drs. T. Wellington, John Ware, Morrill Wyman, J. S. Hurd, Zadock Stone, Anson Hooker, J. M. Whittemore, C. F. Chaplin, Benjamin Cutter, J. W. Bemis, L. V. Bell, H. Adams.

Norfolk County. Drs. J. Stimpson, E. Alden, E. Stone, E. Jarvis, A. Stone, J. Ware, H. Bartlett, E. Woodward.

Nantucket County. Dr. Elisha P. Fearing.

Plymouth County. Drs. Ezek. Thaxter, P. L. Nichols, Winslow Warren.

Bristol County. Drs. Caleb Swan, Johnson Gardner.

Suffolk County. Drs. George C. Shattuck, Ephraim Buck, John Homans, Z. B. Adams, John Jeffries, Winslow Lewis, John Flint, Samuel Morrill, J. D. Fisher, A. A. Watson, George Bartlett, Daniel Harwood, Martin Gay, C. H. Stedman, Jacob Bigelow, George Hayward, S. D. Townsend, J. V. C. Smith, George W. Otis, J. C. Hayden, D. H. Storer, Alexander Thomas, C. G. Putnam, M. S. Perry, Ezra Palmer, A. A. Gould, Henry Dyer, J. B. S. Jackson, H. G. Clark.

At one o'clock the Annual Discourse was read by Dr. Luther V. Bell, of Somerville.

On motion of Dr. Walker, of Boston, it was voted: "That the grateful thanks of this Society be presented to Dr. Bell, for a Dissertation which does great honor to the Society, and at the same time, ample justice to the philanthropy, eminent talents, and great acquirements of its estimable author."

On motion of Dr. Warren, of Boston, it was voted: That a Committe of one from each county, be appointed to welcome the members of the American Medical Association at their next Annual Meeting, which is to be held at Boston, in May, 1849.

The report of the Committee upon proposed alterations in the Charter and By-laws of the Society, which at the last meeting of the Counsellors was referred to the Society, was read and accepted.

Upon motion of Dr. John Ware, it was voted: That, in the opinion of this meeting, the alterations proposed in the report of the Committee appointed, by the Counsellors, 2d Feb. 1848, will conduce to the harmony and promote the usefulness of the Society.

Voted: That the report under the direction of the Counsellors, be sent, as soon as practicable, to the Fellows, in the manner recommended by the Committee, and that they be requested to return an answer to the Corresponding Secretary within one month.

Voted: That if it shall appear, on the examination of the returns, that a majority of the Fellows have returned an affirmative answer to all, or any of the proposed articles, that they shall then be considered as accepted by the Society, and the President shall give notice (public) to that effect, in such manner as the Committee may direct.

Voted: That in case of the acceptance of the propositions, or any of them, that the President be requested to call a special meeting of the Counsellors, for the purpose of taking such measures as may be necessary to carry them into effect.

A communication respecting a Sanitary Survey of the state, which at their last meeting the Counsellors had referred to the Society, was read, and on motion of Dr. Bowditch of Boston, it was voted:

That it be referred back to the Counsellors, and that they be authorized to pursue such a course of action thereon, as the nature of the communication may require.

On motion of Dr. Bartlett, of Concord, a Committee to nominate gentlemen to compose the committee required by the passage of the vote offered by Dr. Warren respecting the reception of the Members of the American Medical Association, was appointed, which consisted of

Dr. Z. B. Adams, of Boston.
" A. R. Thompson, of Charlestown.
" Morrill Wyman, of Cambridge.

As this Committee was not able at once to report, it was voted: That their report be presented to the Counsellors at their meeting to be holden on Thursday, the 1st day of June, A. D. 1848.

The Society dined together at Assembly Hall, Albany Street, three hundred and eighty-six members being present.

Proceedings of the Counsellors.

OCTOBER MEETING, 1847.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's room, in Tremont Street, Boston, on the sixth day of October, Anno Domini 1847, at 11 o'clock, A. M.

The records of the last meeting of the Counsellors was read.

Dr. Peirson of Salem, presented the following report, with the resolutions thereto appended, in behalf of the delegates appointed by the Counsellors at their stated meeting in February, 1847, "to attend the Medical Convention to be held in Philadelphia, in May, 1847."

The delegates appointed to attend the National Medical Convention, held in May last, at Philadelphia, feel it to be their duty to make a brief report. Perhaps this would not have been considered necessary, were it not that the doings of that Convention refer to certain acts of coöperation on the part of the different institutions, whose delegates composed the Convention.

The subject of medical reform has long engaged the attention of many distinguished medical men in our country, but nothing very effectual had been attempted, until the meeting of the preliminary Convention held at New York, in 1846, at which committees were appointed to make reports on subjects regarded as the most important to the well-being of the community, as well as to our profession throughout the country.

The printed and widely circulated reports of the late Convention at Philadelphia, display an acknowledged ability in treating these several subjects, and it only remains for individuals and Medical Institutions throughout our country, who are sincerely desirous to endeavor to elevate the Medical character, to coöperate heartily with the measures proposed at that Convention. The only power of this Convention consisted in faithfully representing the public opinion of the medical fraternity. It did not assume any power of coercion. Its resolutions were mainly recommendatory, but it is hoped that upon examination, the measures proposed will be considered of much

general utility; that they will commend themselves to the favorable opinion of the profession at large.

The spirit which animated this Convention may be inferred from the fact that it consisted of more than two hundred individuals, delegated by the incorporated Medical Institutions of twenty-three States, some of whom came from a distance of nearly a thousand miles, at their own expense. The character of such a body may well command the respect of their medical brethren, throughout the Union.

The practical results of its recommendations remain to be seen. In the preparation of the Reports, which were presented and received the action of the Convention, it is evident that much careful thought was bestowed upon the subjects treated, and we believe that the doings of the Convention will be read with interest, and will tend to promote the welfare of the community, and elevate the character of the medical profession.

With these views, the delegates of the Mass. Medical Society to the late Medical Convention at Philadelphia, recommend the following resolutions:

1st. *Resolved*, That the Counsellors of the Mass. Medical Society cordially approve of the formation of the "American Medical Association."

2nd. *Resolved*, That delegates be appointed to attend the next meeting of the "American Medical Association."

3d. *Resolved*, That a Committee be appointed at this meeting, to ascertain the number of delegates to which this society is entitled, to nominate a list of the same, and to report at the next stated meeting of the Counsellors.

In behalf of the delegates, { A. L. Peirson, Z. B. Adams.

The Report was accepted.

On motion, the three Resolutions were severally adopted.

Dr. George C. Shattuck, of Boston,
" John O. Greene, of Lowell,
" Josiah Bartlett, of Concord,

were appointed the Committee required by the passage of the last Resolution.

The Corresponding Secretary reported the following list of gentlemen, who had become members of the Society, by signing the By-Laws.

James M. Cummings, Salem.
George Jewett.
Joseph B. Walker, E. Stoughton.
Patrick E. Molloy, Boston.
George W. Huntington, Pittsfield.
Thomas B. Wales, Roxbury.
Shelometh S. Whipple, Boston.
Charles H. Vincent, Ashfield.
Daniel B. Plimpton, N. Oxford.
Albion P. Chase, S. Abington.
Robert P. Davis, Boston.
George F. Bigelow, Boston.
James W. Stone, Boston.

The Committee on Resignations reported that Dr. Robert Thaxter, of Dorchester, be allowed at his own request to become a retired member of the society.

This Report was accepted.

Letters were received from Drs. Delano, Peirce and R. L. Hawes, each expressing a desire to retire from the Society, which, on motion, were referred to the Committee on Resignations.

A letter was received from Dr. E. K. Hunt, clerk of the Hartford Co. Medical Society, to ascertain "whether any arrangement can be made with our Society, by which the members of the Medical Society of the State of Connecticut may participate in the advantages which the circulation of the Annual Publication of the Mass. Medical Society affords."

This letter was referred to the Committee on Publications.

It was moved by Dr. Peirson, of Salem, that in consequence of the condition of the treasury, the publication of a Quarterly Journal, for which provision was made at the last stated meeting of the Counsellors by the acceptance of the report of the Committee on Publications, to which that subject had been referred, be postponed for one year.

Dr. Adams, of Boston, moved to strike out the words "for one year," and the motion thus amended was adopted.

On motion of the Treasurer, it was voted: "That the Treasurer be allowed to borrow a sum not exceeding four hundred dollars, in anticipation of the Revenue."

An application was received from Dr. Carpenter, in behalf of the Board (sixth) of Censors, requesting permission to change their days of meeting from the first Wednesday of each May and September, to the first Tuesday of each May and September.

Whereupon, on motion of Dr. Metcalf, of Mendon, it was voted: That the Counsellors recommend to the Society at their next Annual Meeting so to alter the 29th By-Law of the Society as to allow of the desired change.

Dr. Childs, of Pittsfield, presented the following Preamble and Resolve:

Whereas the great object of Medical Association is the advancement of Medical science, and the promotion of harmony and good feeling in the profession, thereby contributing to the best interests of society, and whereas the present organization of the Mass. Medical Society does not fully meet these objects, therefore

Resolved, That a change in the organization of the Mass. Medical Society is, in our opinion, deemed both wise and expedient, and that the change consist in making the basis of the State Society local, or County associations; in other words, having the State Society constituted by delegates annually chosen by the County Associations, agreeably to the principles adopted in the States of New York, Connecticut, Ohio, Vermont, and most of the states in the Union.

Dr. Jeffries, of Boston, moved, That the whole subject be indefinitely postponed.

Dr. Bowditch, of Boston, moved the following amendment: That a Committee, consisting of two individuals from each District Medical Society, and two from each County or part of a County in which no Medical District Society exists, be appointed for the purpose of considering the Preamble and Resolution offered by Dr. Childs, and of reporting at the next meeting of the Counsellors what, if any, alteration should be made in the Constitution and By-Laws of the Mass. Medical Society.

This Resolution was adopted.

Dr. Walker, of Boston, moved: That a committee of five be appointed to retire, and at once report to this meeting a list of gentlemen to constitute the Committee contemplated by the adoption of this Resolution.

Upon this Committee were appointed Drs. Bowditch, of Boston, Peirson, of Salem, Bemis, of Charlestown, and Jeffries and Lewis, of Boston.

The Committee reported the following list:

Drs. Peirson and Cox, of Essex South District Society.
Drs. Spofford and Appleton, of Essex North District Society.
Drs. Flint and Metcalf, of Worcester District Society.
Drs. Childs and Jennings, of Berkshire District Society.
Drs. Clarke and Orcutt, of Hampshire District Society.
Drs. Spooner and Yale, of Southern District Society.
Drs. Cornish and Carpenter, of Barnstable District Society.
Drs. Bridgman and Bemis, of Hampden District Society.
Drs. Dalton and Kimball, of Middlesex District Society.
Drs. Swan and Randall, of Bristol County.
Drs. Williams and Deane, of Franklin County.
Dr. Fearing, of Nantucket County.
Drs. Nichols and Warren, of Plymouth County.
Drs. Alden and Stimpson, of Norfolk County.
Drs. Smith and Adams, of Suffolk County.

This Report was accepted.

Voted: To dissolve the meeting.

ALEX. THOMAS, *Recording Secretary.*

FEBRUARY MEETING, 1848.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's room, in the Masonic Temple, Tremont Street, Boston, on Wednesday, the second day of February, 1848, at 11 o'clock, A. M.

The records of the last meeting of the Counsellors were read.

MAJORITY REPORT ON DR. CHILDS'S PREAMBLE AND RESOLUTION.

Dr. Peirson, of Salem, from the Committee appointed at the last meeting of the Counsellors, "to consider the Preamble and Resolutions offered by Dr. Childs, of Pittsfield," having first read different letters, which he had received from various individuals, members of the profession from different states, and from some residing in towns in the different sections of our Commonwealth, presented the following majority report:

The Committee, to which was referred the resolution offered by Dr. Childs, of Berkshire, respectfully report: That in their opinion the complaints against the Society, urged in the Preamble to that resolution, arise from imperfect apprehension of the objects to be obtained by a medical organization, such as the Massachusetts Medical Society purports to be. Its primary objects obviously are to effect a system of adequate and uniform education, and to elevate the standard of professional intercourse among practitioners. The Committee would briefly refer to the history of the Society.

When the Society was first formed, it was doubtless expected that in its limited number of seventy, would be created a scientific body, which would discuss and diffuse medical information and improvements, and take rank among the institutions of learning and science. An election into it was made honorary, and only conferred upon those who had arrived at some distinction in the profession. As the profession became more numerous, at the beginning of the present century, a different object was mainly proposed. This was to embody the whole of the regular practitioners of medicine and

surgery in the state, and by means of the authority derived from the State Legislature, to regulate the requirements of a medical education, so as to elevate the general character of the whole profession. For this purpose the limit of numbers was taken off, and every physician, after three years practice, was entitled to enrollment as a member. Finally, to do away with all the features of a close corporation of exclusive privileges, and to make the membership still more accessible, even the delay of three years has been dispensed with, and every regular physician can at once claim to be constituted a Fellow. From this cause it arises that the Society has reached its present number of more than eight hundred; a body at once becoming too large for the quiet discussion and examination of those scientific subjects usually brought before learned bodies.

To abridge in some degree the inconvenience of numbers, the Counsellors are made to consist of one eighth of the whole, and, being enabled to hold more frequent meetings, exercise a general management.

From this body have emanated, as its publications evince, a creditable display of knowledge and science. This organization of the Society has effected most beneficial improvements in the character and usefulness of the profession.

The confidence of the public has kept pace with the advancement of the profession, so that nowhere in our country, if in any other, can be pointed out a more respectable body of practitioners, or one more highly estimated by the community. If we have not made the advancement of medical science our sole object, or even our main object, we have steadily elevated our profession, by improving medical education, encouraging the harmony and honorable intercourse of its members, and have protected from the mischief of quackery, by discouraging every show of it among regular practitioners. The simple and efficient plan of the Society has accomplished all that was ever intended by its organization in 1803; while it is notorious that in other populous states, they have not attained a condition of the profession as desirable and satisfactory. It is to be regretted that from natural causes, no way to be attributed to the form of organization, the concentrated action of the Society has not been equally felt in all parts of this extended Commonwealth.

It has produced its best results in the more populous districts, where the system has been fully sustained.

The operation and benefits of good government are not local; it is equally felt wherever its power is acknowledged, at the circumference, as well as at the centre. It is the allegiance of each man's mind to justice and good order. And when it receives the cheerful support of each friend of good order and healthful restraint, like the civil government under which we live, it binds harmoniously together the remotest localities, and thinnest population.

In the County of Berkshire, in particular, the intelligent physicians of which region have hitherto had so little opportunity of associating with those in the Central and Eastern parts of the Commonwealth, this erroneous view of the objects and operations of the Society has been productive of repeated complaints. The Society has always met these complaints in the most conciliating spirit. Every request has been so far complied with, as to be deemed satisfactory, and to draw from those, who urged the complaints, the assurance that the concessions would ensure the desired harmony. It still, however, has been apparent that no compliance on the part of the Society, has induced a cordial co-operation. While the Society has been most sincerely desirous to remedy the evils complained of by the Berkshire members, it has encountered the obvious difficulty that other distant parts of the Commonwealth have equal claims to be considered by the parent body; and that whatever privileges are granted to the extreme Western district Societies, should, in justice, be extended, whenever demanded, to those which are formed upon the distant sea coast. A complaint was made in the circular of the "Berkshire District Medical Society," addressed to the "Medical profession of Massachusetts," that "the meetings, the funds, and the library of the Society are held, located, and confined to Boston." This complaint, with the additional one, that they cannot easily attend the Annual Meeting of the Society in Boston, is also urged in the petition to the Legislature of "the physicians of the County of Berkshire," as caused "by burdens, oppressions and inconveniences" too "unjust" to be borne, and made the ground of a request to the Legislature, similar to that now made to this Society. The erroneousness of these charges was clearly set

forth in the remonstrance of this Society to this petition, which failed of its object. The meetings of the Society are held in Boston, as the most conveniently accessible, if not central part of the Commonwealth; and the place of meeting may at any time be changed to Worcester, Pittsfield, Barnstable, Nantucket, or any other place in the limits of the Commonwealth, by a simple vote of the Society.

These Annual Meetings are indeed important, and may well excite the interest of those who seek the welfare of the profession. They are the occasions when the By-laws are enacted, in which the general principles to regulate the profession, the specific rules to govern the Society, and the standard of education to be attained by all, are stated and explained. It is always regretted that the distant members are not more frequently induced to be present at these Annual Meetings. More than one third of the Society are usually present, and although all may not attend every year, as many do, yet every one, who has a due interest, will find it convenient to be present at some meeting, and thus, eventually, all the members of the profession, old and young, are brought into personal contact. But it is not in these meetings, nor even in the more frequent and limited ones of the Counsellors, that an impulse is sought to be given to professional literature and science. This is the legitimate object of the district societies, so admirably adjusted by our Charter, which can be frequently assembled without the inconvenience arising from the great distance of the members from the place of meeting.

The "funds" of the Society, after paying the current expenses, including the annual dinner, provided for all who choose to attend the Annual Meetings, are distributed all over the state, in the gratuitous supply of the different publications of the Society. The District of Berkshire has not been backward in obtaining this supply. The Treasurer's and Librarian's books will prove that a share of the funds has been expended in furnishing standard works and occasional pamphlets to the Berkshire District, larger than any other portion of the Commonwealth has received, in proportion to their assessments paid into the treasury. The burden of raising these funds is not exactly equally proportioned. The remission of one third of the assessment to district societies, operates to the advantage

of the remoter districts, inasmuch as no district society has ever been formed in Suffolk County, and the assessment of the Boston members, who constitute numerically more than one fifth of the Society, goes undiminished into the treasury.

The last cause of complaint, in reference to the library, falls to the ground when it is stated that this has also been mainly distributed to the district societies, and that the County of Berkshire has had its full share, and that what remains is of too trifling a nature to be a cause of complaint.

In regard to the methods proposed to obviate the evils complained of in the preamble, the committee are satisfied that the mode in which district societies are formed with us, is preferable to that adopted in the other states named in the resolve. With us the district society is a voluntary organization, which a few physicians, in any neighbourhood, may carry into effect, within territorial limits agreed upon by themselves; in these and other states, proposed to us as models, the system is compulsory, and the limits are those assigned by the Legislatures from which their Charters are obtained. It does not therefore seem to your Committee reasonable, that the whole Society should be reorganized for the doubtful advantage to be obtained by creating primary bodies, in the form of District Societies with legislative powers. Similar bodies already exist, or may be created under the Charter already possessed by the Society, and are admirably adapted to the local convenience of Fellows in meeting for the purpose of medical discussions and the attainment of all the objects of medical association. A proof of this is found in the fact, that several district societies have been many years in successful operation in different parts of the state. Any remodeling of the present Society, would greatly tend to injure these local institutions.

The Massachusetts Medical Society, as it now exists, is an institution, upon which much labor and wise forethought have been bestowed, to adapt it to the views of a majority of Fellows, the exigences of the public, and the just expectations, always pointing to a more elevated standard. It has led the way in this progress, without waiting for the promptings of medical schools, or a jealous community. A very voluminous correspondence, still contained in

the archives of the Society, evinces the liberality with which, in 1803, it dispensed its privileges to all well-educated physicians; and the very language of its Charter shows the confidence of the Legislature, that it was capable of effecting beneficial purposes in regard to the welfare of the Society. It is regarded by physicians in other states and other countries, as a most desirable model of medical organization. It is generally acknowledged to have effected its object of elevating and uniting the profession, more perfectly than it has been done elsewhere. Whenever it has been attacked in a public way, it has always shown, before an intelligent Legislature, a strong and satisfactory claim to the confidence of the public; and it has always obtained from this Legislature, those reasonable requests, which from time to time it has made. Though not combined solely for scientific or literary purposes, it is always ready to disseminate gratuitous information on the medical topics which agitate the minds of anxious communities.

The reports upon vaccination, petechial fever, and cholera, prepared its Fellows for a better knowledge of their duties, than was elsewhere so generally diffused. The dissertations upon articles of the materia medica, and upon modes of practice newly introduced, were eminently serviceable and timely. Experience has shown that the present organization of the Society has readily furnished these results, and no disastrous failure has yet lessened its numbers, or diminished its usefulness. It appears to your Committee unwise to desert a system which has worked well for nearly half a century, and adopt one which is far less general, is inconsistent with our republican institutions, and combines less of the general interests of the whole profession. The true interests of the whole profession emphatically call for the effort to maintain, strengthen, and improve, as occasion may require, our present constitution. If any parts of the Commonwealth, from position or any other cause, fail to receive their proportion of the Society's beneficial influence, their condition will not be improved by enervating the vigor of the Society by unreasonable complaints, and impeding its movements by chimerical innovations. Their aspirations for something better should lead them to the adoption of plans not involving the entire Society, and to the formation of institutions of less humble pretensions. With these

views your Committee recommend that the subject be indefinitely postponed.

A. L. Peirson, *Salem*,	Aaron Cornish, *Falmouth*,
Benjamin Cox, "	John C. Dalton, *Lowell*,
Ebenezer Alden, *Randolph*,	Paul Spooner, *N. Bedford*,
Edward Flint, *Leicester*,	Jeremy Stimson, *Dedham*,
J. Geo. Metcalf, *Mendon*,	Z. B. Adams, *Boston*,
Henry Orcutt, *W. Hampton*,	Jeremiah Spofford, *Bradford*,
Winslow Warren, *Plymouth*,	Atherton Clark, *E. Hampton*,
P. L. Nichols, *Kingston*,	John Appleton, *W. Newbury*,
Caleb Evan, *Easton*,	Leroy M. Yale, *Tisbury*,
Elisha P. Fearing, *Nantucket*,	M. R. Randall, *Rehoboth*.

MINORITY REPORT ON DR. CHILDS'S PREAMBLE AND RESOLUTION.

Dr. Smith, of Boston, from the same Committee, presented the following minority report.

The Committee to which was referred the following Preamble and Resolution, viz :—" Whereas the great object of medical association is the advancement of medical science, and the promotion of harmony and good feeling in the profession, thereby contributing to the best interests of society, and whereas the present organization of the Massachusetts Medical Society does not fully meet these important objects, therefore resolved : That a change in the organization of the Massachusetts Medical Society, is in our opinion deemed both wise and expedient, and that the change consist in making the basis of the State Society local or County Associations ; in other words, having the State Society constituted by delegates annually chosen by the County Associations, agreeably to the principle adopted in the States of Connecticut, New York, Vermont, Ohio, and in most of the states of the Union," have met and discussed the subject, and beg leave to submit the following report.

The Massachusetts Medical Society was incorporated in 1781, and doubtless was adapted to the then existing state of the profession, and to the wants of the state. At that period, the population of the state was relatively small ; well educated physicians few in number, and widely scattered over the state. Legal restrictions

were imposed upon the practice of medicine, and it was necessary to establish tribunals for deciding the qualifications of practitioners. To the Massachusetts Medical Society was intrusted the exclusive power of regulating the practice of medicine, deemed by government indispensable to the best interests of the people at that period. At the time of the incorporation of the Massachusetts Medical Society, and for many years after, medical schools were hardly known in the United States. There was no other board of examiners to test the qualifications of medical students to enter the practice of their profession, but such as were authorized and constituted by the Massachusetts Medical Society.

It is most obvious, from an examination of the acts of the Legislature, passed at different times since the establishing of the Massachusetts Medical Society, that the principal object and design of the Society and of the Legislature, were not for the benefit of Medical Association, but to guard the profession and the community against the introduction to the practice of medicine of improper persons, unqualified for the discharge of its responsible duties; and in 1818, an act passed the Legislature depriving all practitioners of medicine who were not licensed by the Society, or who had no M. D., of the benefit of law, for the recovery of any debt or fee accruing for his professional services; and in 1819, this disability was extended to all physicians but graduates of Harvard University, and Licentiates of the Massachusetts Medical Society. The repeated acts in addition to acts relating to the incorporation of the Massachusetts Medical Society, with a view of meeting the demands of the profession, and of the Commonwealth, together with numerous by-laws and orders, ever changing and ever unintelligible, are evidences of the defects in the organization, which no amendments have as yet been able to cure. The original object and design of the Society, as already stated, being chiefly for the purpose of deciding on the qualifications of members of the profession, being suspended to a great extent by the abrogation of all special laws regulating the practice of medicine, its utility is greatly diminished, if indeed not wholly useless as regards the present wants of the profession and the community.

The government of the state relinquishing all direct control over the practice of medicine, and leaving it, as the other professions are

left, to its own management, it is most obvious that other regulations than those now existing are most imperatively demanded: in other words, the members of the profession, themselves, have devolved upon them the responsibility of regulating, sustaining, and maturing the regular practice of medicine. Nor do we view this change unpropitious to the cause of medical science, provided we can have an organization adapted to the existing state of things.

In the Remonstrance of the Massachusetts Medical Society against the Berkshire Petitioners, the following language is used: "The Society has at all times been eminently useful in promoting friendly intercourse and honorable conduct among the members of the profession, in upholding a proper standard of medical education, and in protecting the community from the encroachments of ignorant and incompetent practitioners." We readily concede that the Society was once eminently useful in protecting the community from the encroachments of ignorant pretenders, for that was the main, of not the only reason why the Society was first brought into existence; and it must be obvious to all, that circumstances have greatly changed. Our legislative tables have been completely turned, and will probably ever remain so. A license, or medical degree, is no longer requisite for the practice of medicine in Massachusetts, and no laws of the State, or of the Massachusetts Medical Society, are of any avail in guarding the entrance into the profession, or regulating the conduct of its members. We have to look to the regular practitioners themselves for such action as will protect and advance their own best interests. On what plan can this important object be best accomplished?

This is the question to be decided, and this is the question which ought to enlist the feeling and the talent of all who duly appreciate the interests which it involves. Associated action! Union and concert of action by all the regular practitioners! is the answer. The power and the influence of such action is fully adequate to the exigencies of the case. Besides the power of medical association, which would give energy to all their regulations, another and greater benefit would result: that of mutual improvement, and friendly feeling among the members of the profession. Under the regimen of the Massachusetts Medical Society, is there any prospect of obtaining these desirable and all-important objects? Look

at the facts in the case. We say, less than one half of the regular practitioners of medicine now nominally constitute the Society. In Berkshire there are one hundred; less than twenty belong to the Society. In Hampden one hundred and thirty (about); and of this number only about twenty or twenty-five are members of the State Society. In some other counties there is doubtless a majority, while in others not one half of the regular physicians are members. The number of Fellows of the Massachusetts Medical Society is not far from seven hundred, which is not probably one half of the physicians in the State. Two important objects are sought to be obtained by the proposed change in the organization of the Massachusetts Medical Society. 1st. A State Society, which shall represent the interests, the talents, and the views of all the Faculty in the Commonwealth, and devise such general plans for the benefit of the whole profession in the State, as circumstances require; and thus present to the other States, and to the Union, a dignified example of professional wisdom and harmony. 2nd. The organization of County Associations for the express purpose of personal improvement in the science and practice of medicine; also for the adoption of such regulations as will best promote the interests of the profession.

In addition to county Associations, with all their concomitant advantages, already noticed, from which delegates shall be chosen to constitute the State Society, an acquaintance would be cultivated between the members of the faculty at home, and throughout the State, highly conducive to the advancement of medical science and the harmony and best good of all.

Under the present organization, little can be expected from beneficial regulations, and nothing, really, of the advantages of medical associations.

The few who more nominally belong to the State Society, notwithstanding the almost fruitless efforts that have been made to induce physicians generally to join the Society, is conclusive evidence of the defective principles on which the Massachusetts Medical Society is based, and ought to excite an interest in all the friends of medical science for some improved system.

Resolved, That this Committee recommend to the Board of Counsellors of the Massachusetts Medical Society to present, at the

next annual meeting of the State Society, the subject of an amendment of the charter of the Massachusetts Medical Society, advising the incorporation of the principle of basing the State Society on a delegation of members, to be chosen annually by the several county Medical Associations.

H. H. Childs, *Pittsfield*,
James Deane, *Greenfield*,
Wm. Bridgman, *Springfield*,
by Wm. Bridgman, Attorney, *Cabotville*,
David Bemis, *Cabotville*,
Steph. W. Williams, *Deerfield*,
Selden Jennings, *Richmond*,
Gilman Kimball, *Lowell*,
J. V. C. Smith, *Boston*.

On motion of Dr. Smith, of Boston, two letters, severally, from Dr. S. W. Williams, of Deerfield, and Dr. J. Deane, of Greenfield, enumerating in full their reasons for having signed the minority report, were read.

Dr. Jeffries, of Boston, moved that the report of the majority of the Committee be accepted.

Dr. Adams, of Boston, moved to amend the motion by adding thereto, "and that the number of Counsellors, voting yea or nay thereon, and the whole number present, be recorded.'

The motion thus amended, was adopted. Twenty-five voted in the affirmative, three in the negative; forty-two Counsellors being present.

A question having arisen, whether the acceptance of the report implied an adoption of the recommendation appended thereto, a motion was made that this recommendation be adopted, and was decided in the affirmative.

On motion of Dr. Jeffries it was voted, that the report of the minority of the Committee be received, recorded, and printed in the next annual volume of the Society's Transactions.

The Committee, to which at the last meeting of the Counsellors was referred the subject: "how many delegates shall the Society send to the next meeting of the American Medical Association to be holden in Baltimore, May, 1848, and who shall constitute that list of delegates?" reported, That the Society are authorized by the rules of the American Medical Association to send fifty; and recommend that the following gentlemen compose that list.

For Essex, South District. Drs. A. L. Peirson, Geo. Choate, Reynolds, of Gloucester, and Wildes, of Ipswich.

For Essex, North District. Drs. Jeremiah Spofford and Rufus Longley.

For Worcester District. Drs. J. Green, E. Flint, C. W. Wilder, S. Batchelder, S. C. Hartwell, Osgood, of Templeton, and Sargent, of Worcester.

For Berkshire District. Drs. Royal Fowler, and Robert Worthington.

For Hampshire District. Drs. Benjamin Barrett, Stephen W. Williams.

For Southern District Medical Society. Drs. Spooner and Bartlett, of New Bedford, and Paul Nichols, of Kingston.

For Barnstable District. Drs. Cornish, of Falmouth, and E. W. Carpenter, of Chatham.

For Hampden District. Drs. William Bridgman, and James W. Smith.

For Middlesex District Society. Drs. J. C. Dalton, N. Cutter, E. Huntington, and J. Bartlett, of Concord.

For Middlesex County. Drs. J. Wellington, of West Cambridge; H. Adams, of Waltham; Simon Whitney, of Framingham; A. B. Adams, of Bedford; Joshua Green, of Groton; J. O. Green, of Lowell; Hiram Hosmer, of Watertown, and Abraham R. Thompson, of Charlestown.

For Norfolk County. Drs. Jeremy Stimpson, Ebenezer Alden, Henry Bartlett, and Edward Jarvis.

For Suffolk County. Drs. Zabdiel B. Adams, John Jeffries, William J. Walker, Winslow Lewis, J. V. C. Smith, D. H. Storer, Alexander Thomas, Ezra Palmer, Marshall S. Perry, Martin Gay, Henry G. Clark, Henry I. Bowditch, Henry Dyer, and Henry Bryant.

For Nantucket. Dr. Elisha Fearing.

Signed { George C. Shattuck,
Josiah Bartlett,
John O. Green.

Report accepted.

On motion of Dr. Peirson, of Salem, it was

Resolved, That a Committee be appointed from the Fellows of the Society, to examine the Charter and By-Laws of the Society, and report at the next meeting of the Counsellors, if any and what alterations are necessary therein.

The following gentlemen were appointed to this Committee.

Dr. J. Ware, Boston; Dr. A. L. Peirson, Salem; Dr. W. Lewis, Boston; Dr. J. Jeffries, Boston; Dr. J. V. C. Smith, Boston; Dr. H. H. Childs, Pittsfield; Dr. John C. Dalton, Lowell.

It was voted, that when this meeting shall adjourn, it shall be to the Tuesday next preceding the last Wednesday in May next.

The Corresponding Secretary reported the names of the following gentlemen, who had become Fellows of the Society, since the last meeting of the Counsellors, by signing the By-Laws.

Shelometh S. Whipple, M. D., Boston; John B. Wadleigh, M. D., Haverhill; Daniel S. Allen, M. D., Saugus; L. B. Coles, M. D., Boston.

The Publishing Committee, to which had been referred the communication from certain members of the Connecticut Medical Society, respecting their desire to participate in the advantages of our annual medical volume, reported favorably to their application. And thereupon it was

Voted, That the Corresponding Secretary communicate with them by letter.

A letter was received from Messrs. Wood, of New York, offering upon certain terms to supply the Society with the British and Foreign Medical Review. Also a letter from Dr. Green, of Falmouth, upon Medical Statistics, both of which were referred to the Committee on Publications.

A letter was received from Dr. Luther V. Bell, of Somerville, acknowledging the honor done to him, and consenting to deliver the address to the Society at its next annual meeting.

Voted, That this meeting be now adjourned.

ALEXANDER THOMAS, *Recording Secretary.*

MAY 30, 1848.

An adjourned meeting of the Counsellors of the Society was held at the Tremont Temple, Tremont street, Boston, on Tuesday, the 30th day of May, A.D. 1848, at 10 o'clock, A.M.

The records of the last meeting were read. Dr. John Ware, of Boston, Chairman of the Committee appointed at the last meeting of the Counsellors to ascertain if any and what alterations are necessary in the Charter and By-Laws of the Society, presented the following report: —

The Committee appointed by the Counsellors to examine the Charter and By-Laws of the Massachusetts Medical Society, and to consider whether any alterations are necessary therein, have the honor to offer the following report :

In attending to this subject, the Committee have had especially in view the opinion held, and often expressed by many members of the Society, that, as at present constituted, it does not accomplish all the purposes of which it is capable; and, particularly, that in many of the remote parts of the State, it fails to secure the favor of the profession, and consequently that only a limited proportion of regularly educated physicians find it for their interest to become its members.

The Committee, in thus taking into consideration the operation of the Society, are satisfied that its greatest influence has been exerted and its best effects produced, in and around the place which is the centre of its organization. Those who are able to attend its meetings, and take part in the management of its affairs, are of course most interested in its prosperity, and conform most readily to its requirements. Those, on the contrary, who reside at such a distance as makes their attendance difficult and infrequent — or impossible — feel naturally a less lively concern in it — they hardly perceive their actual connection with it; — they consider themselves called upon to obey laws which they have no voice in making, and to contribute to the expenses of an organization in which they find it difficult to take part. As a consequence of this, regularly educated persons who enter the profession under these circumstances have not sufficient inducements offered to them to become members.

They perceive that the Society is little known to those among whom they are thrown, and has but little influence over them; that it is not necessary to their reputable standing among physicians, nor to their success with the community, that they should be connected with it.

This inequality in the operation of the Society is only incompletely met by the Constitution of the Board of Counsellors, although they are intended to represent the Fellows in all parts of the Commonwealth. The same circumstance of distance which prevents the full attendance of Fellows at the annual meeting, has also an effect on the meetings of the Counsellors. Besides this, their election by the Society at large, amidst the press and hurry of business at their annual meeting, when many of the members are called upon to vote without opportunity for previous consultation, sometimes even without personal acquaintance with each other and with the candidates; prevents that deliberate consideration which is necessary to the selection of persons suitable for the office, and of those whose leisure will permit them to attend to its duties. These circumstances have often occupied the attention of the members with the view of devising means for obviating their unfavorable influence; and in the Convention of 1839, a provision was made for the selection of lists of candidates by the Districts, which, although a decided improvement upon the former method, has still proved only a partial remedy for the inequality which is felt to exist.

The result of this has almost necessarily been that the Counsellors and Officers have been virtually chosen, and the affairs of the Society chiefly managed by those Fellows who reside within a certain circuit around Boston. The Committee fully believe, that the powers which have thus almost of necessity fallen into their hands, have been fairly exercised, and with a sincere purpose of promoting the best interests of the profession; yet they are nevertheless of opinion, could means be devised by which the relation which members bear to the Society should be rendered more uniform and equal, that its salutary influence would be more extensively diffused over the Commonwealth, and an interest in its character and prosperity become the common feeling of the whole profession.

With the hope of promoting so desirable a result, the Committee

submit, for the consideration of the Counsellors, a plan for certain modifications of the organization of the Society and for some alterations in the arrangements for its meetings and its publications, which are embodied in the following articles.

1. The Counsellors shall be chosen by the Fellows of the Society in their several Districts; if practicable, at least one week before the annual meeting — the choice to be made by the District Society where one exists; and where such a Society does not exist, by a Convention of the Fellows of the District, called for this special purpose, in such manner as may be hereafter provided. If any District fail to choose Counsellors by one of these modes, then the whole body of the Counsellors, at their annual meeting, shall fill the vacancy.

2. The District Societies shall have the power of admitting persons to Fellowship in their several Districts, who shall thus become Fellows of the Society at large, and shall receive from it their certificate of admission; but a common standard of qualification for admission shall be established, to which all the Districts shall conform, and all admissions shall be subject to the revisal of the Board of Counsellors.

3. The annual meeting of the Counsellors shall be held on the day preceding that of the annual meeting of the Society. At this meeting they shall choose the officers and transact the business of the Society, as nearly as practicable, as is done under the present organization.

4. The annual meeting of the Society shall be held in such of the principal towns or cities of the Commonwealth, as the Counsellors shall, from year to year, determine. They shall also appoint, annually, a presiding officer for the meeting and the dinner; and a committee, who, with the presiding officer, shall have charge of all the necessary arrangements for the occasion.

5. There may be annually prepared, under the direction of the Counsellors, and at the expense of the Society, a Retrospect of the Medical Literature and Science of the preceding year, having reference especially to discoveries and improvements of practical value. This Retrospect shall be published in the place of, or in addition to, the present annual volume, at the discretion of the Counsellors.

6. In order to ensure a full and fair expression of opinion, on the part of the Society, concerning these propositions, a copy of this report shall be transmitted to each Fellow, with a request that he return to the Secretary his assent to, or dissent from, its several articles, in the form of a distinct affirmative or negative with regard to each, within some definite period. Should it appear from the returns thus received, that the alterations in question, or any of them, receive the approbation of a majority of the Fellows, they shall be considered as adopted, and the Counsellors shall take such measures as are necessary to carry them into effect.

In concluding their Report, the Committee beg leave to add a few remarks to those already made, concerning the expediency of these changes, especially that which relates to the place of holding the annual meeting.

It is not to be anticipated that the actual number of Fellows attending the annual meeting in any single year, will be as great as upon the present plan; still, it is believed that in any given succession of years, a greater proportion of them will have it in their power to be sometimes present. Many who can now *always* attend without inconvenience, will be occasionally deprived of this privilege; but on the other hand, very many who now *seldom*, and perhaps *never* have it in their power to attend, will have the opportunity presented to them as frequently as their hitherto more favored brethren.

The arrangement now suggested, the Committee believe, will be more advantageous to the Society than to relinquish entirely the meeting of the Fellows at large, and to limit the organization of the general body of physicians of the State, to the representative system. In a larger community this might be necessary, but in so small a territory and with so dense a population as ours, the union of the two systems does not seem to be impracticable, and the general assembly of the Fellows at their annual festival, seems always to have been singularly beneficial in promoting good feelings, and a right professional relationship among those who come together.

It is also believed that these meetings, conducted on this plan, may be made the means of bringing this Society more under the notice and knowledge of the community, and of increasing its

respectability and usefulness, by making mankind acquainted with its just claims, and consequently also with the true character of the regular members of the profession. In a large city, meetings of this description are matters of common occurrence; they excite no attention and exert little influence. But in other places, such a meeting as ours would be an occurrence of some importance, would excite interest, and this not only in the place itself, but to some extent also in the surrounding district.

The Committee would also suggest whether it is not within the purposes of the establishment of the Society, to take some interest in promoting medical education and raising the standard of professional acquirement in the Commonwealth. This subject is especially worthy of consideration at the present time, when the attention of the whole body of the profession has been called to it by their delegates at the meeting of the American Medical Association. It is believed that a decided impulse will be given to medical education, and that its standard will be gradually elevated, as the result of the labors of this body; and it is due to the character of our community, never behind any other in enterprises of this description, that we should do our full share in so good a work.

JOHN WARE,
For the Committee.

On motion of Dr. Bowditch, it was

Voted, That the report of the Committee be accepted, and that the articles appended thereto be separately considered.

The first article having been read, it was moved and seconded, that it be accepted; which motion, after much debate, was adopted.

The second article having been read, was adopted.

The third article, after having been read, was adopted.

The fourth article having been read, was, on motion, adopted.

The fifth article, after having been read and amended by substituting the word "may" for the word "shall," was adopted.

The sixth article was read, and, on motion, adopted.

The report, thus in full accepted, was referred to the Society for action thereon at their next annual meeting.

It was, on motion of Dr. Peirson, of Salem,

Voted, That this report be at once printed, and distributed to the Society at its next annual meeting.

The execution of this vote was entrusted to the Committee on Publications, to which, on motion of Dr. John B. S. Jackson, of Boston, Dr. John Ware was added.

The following communication was presented by Dr. Bowditch, and referred to the Society at its next annual meeting, viz.: "That the Massachusetts Medical Society approve and will encourage the plan of a sanitary survey of the State, which was proposed by the American Statistical Association to the Legislature of this Commonwealth.

"That this Society will petition the next Legislature of this State to cause such a survey to be made, and thus ascertain and publish the sanitary resources and influences of the Commonwealth. And that such a petition and memorial shall be prepared and signed by the President and Secretary, and presented to the next General Court."

"That this Society requests and urges each one of its members to use his influence with the gentlemen who may be chosen to represent his town or city, and his county in the next Legislature, to procure the passage of a law establishing such a sanitary survey."

Voted, To dissolve the meeting.

ALEXANDER THOMAS, *Rec. Sec.*

JUNE MEETING, 1848.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Masonic Temple, Tremont Street, on Monday, June 1, 1848.

The records of the last meeting of the Counsellors and of the last annual meeting of the Society were read.

Voted, To proceed to the choice of officers. Drs. Dalton, of Lowell, Smith, of Boston, and Cutter, of Pepperell, were appointed of committee to collect, assort, and count the votes.

Dr. Howe, the President of the Society, having declined a re-election, it was voted, on motion of Dr. Peirson, of Salem, "that

the sincere thanks of the Society be tendered to Dr. Howe for the kind and obliging, as well as efficient and impartial manner in which he has presided during the past years."

Dr. John Ware, of Cambridge, was elected President. A letter having been received from Dr. Edward Flint, declining a re-election as Vice-President, Dr. Joseph Stone, of Hardwick, was elected Vice-President.

Dr. J. B. S. Jackson having declined a re-election, Dr. D. H. Storer was elected Corresponding Secretary.

Dr. Alexander Thomas having declined a re-election, Dr. C. G. Putnam was elected Recording Secretary.

Dr. Z. B. Adams having declined a re-election, Dr. A. A. Gould was elected Treasurer.

Dr. M. Gay was elected Librarian.

Drs. O. W. Holmes, John Ware, and Morrill Wyman were elected Publishing Committee.

Drs. George W. Otis, W. Lewis, and A. A. Gould were elected Committee on Resignations.

The following gentlemen were elected Censors for the first Medical District, and for the Society at large, viz. : Drs. J. D. Fisher, Geo. W. Otis, Alexander Thomas, J. B. S. Jackson, and John Flint. Dr. Winslow Lewis, Jr., declined a re-election.

Censors for the second Medical District, Drs. B. F. Heywood, Benjamin Pond, Joseph Sargent, J. G. Metcalf, Wm. Workman.

For the third Medical District, Drs. David Bemis, J. Abbott, E. G. Ufford, S. B. Woodward, James Deane.

For the fourth Medical District, Drs. Henry H. Childs, Asa G. Welch, Robert Worthington, Nathan S. Babbitt, Corridon Guiteau.

For the fifth Medical District, Drs. Alexander Read, Lyman Bartlett, Thomas Wilbur, John Perkins, Perez F. Doggett.

For the sixth Medical District, Drs. Aaron Cornish, E. W. Carpenter, Thomas P. Jackson, George Atwood, Jonathan Leonard.

The report of the Auditors of the Treasurer's accounts was read and accepted.

The report of the Committee on the Library was read and accepted.

The report of the Committee on Resignation was read and accepted.

The Censors report was read and accepted.

The Corresponding Secretary reported the following names of gentlemen who had become Fellows of the Society since the last stated meeting of the Counsellors, viz:

Eugene O'Neill, Boston; Samuel A. Lord, South Danvers; Edward B. Moore, Boston; Lemuel Dyckerman, Medfield; Gustavus Taylor, Boston; Oscar Burbank, Lowell; Charles Howe, Stoughton; Franklin A. Cady, Pittsfield; William Williams, Salem; John E. Dalton, Jr., Boston; Francis Minot, Boston; Luther Parks, Jr., Boston; Howland Holmes, West Cambridge; George H. Gay, Boston; Joseph H. Streeter, Roxbury; William G. Wheeler, Chelsea; Nathaniel B. Danforth, Chatham; Moses Rogers, Dennis; Charles Haddock, Beverly; Benjamin Heywood, Worcester; Benoni Carpenter, Pawtucket; Charles E. Parker, Pepperell; Jabez B. Upham, Boston; Charles A. Davis, Chelsea; Henry M. Hooke, Lowell; Benjamin T. Gilman, Boston; Luther Jones, South Yarmouth; William B. Gouch, South Dennis; Enos Hoyt, Framingham; David T. Hutchins, Watertown; Otis E. Hunt, Weston; Jonathan T. Curtis, Lawrence; Tappan E. Francis, Roxbury.

The committee appointed to nominate one Fellow from each county to form a Committee of reception for the American Medical Association, reported the following names.

From Suffolk, Dr. James Jackson; Barnstable, Dr. Aaron Cornish; Dukes, Dr. Leroy Yale; Essex, Dr. Andrew Nichols; Bristol, Dr. Paul Spooner; Berkshire, Dr. Selden Jennings; Franklin, Dr. S. W. Williams; Hampden, Dr. James W. Smith; Hampshire, Dr. Edward G. Ufford; Middlesex, Dr. Elisha Huntington; Nantucket, Dr. E. P. Fearing; Norfolk, Dr. Jeremy Stimson; Plymouth, Dr. Paul L. Nichols; Worcester, Dr. Stephen Batchelder.

A proposition for a sanitary survey having been presented, it was

Voted, That the President of the Society, together with Dr.

Jarvis, of Dorchester, and Dr. Dalton, of Lowell, be a committee to prepare a petition in relation to the subject, and present the same to the Legislature.

Voted, That the motion (made in February last) to defray the individual expenses of the Committee on the Preamble and Resolutions in regard to amendment of the Charter of the Society, be referred to a committee, to report to the next meeting of the Counsellors.

Voted, That the committee consist of three, — the Treasurer of the Society, Drs. Alden and Thomas.

Voted, That a committee be appointed to arrange the By-Laws, in conformity with the new organization, if adopted, with authority to apply to the Legislature.

Voted, That Drs. Jeffries, Peirson, Childs, Williams, of Deerfield, and Hooper, of Fall River, constitute the Committee.

Voted, "That this Committee be enlarged by the addition of the Treasurer and Dr. Z. B. Adams."

It was moved, by Dr. Z. B. Adams, that a committee be appointed to consider the expediency of so altering the By-Laws that the annual assessment shall be only one dollar, and that all who desire a copy of the "book" shall give previous notice to the Recording Secretary, and shall be charged the cost thereof; and that the income of the permanent fund shall be applied to the payment of rents and other current expenses. It was further moved, that the age should be sixty-five before permission be given to resign. Whereupon it was

Voted, That the subject be referred to the Committee on "Alterations in the Charter."

Dr. Josiah Bartlett, of Concord, was chosen to deliver the next annual address.

Dr. Lewis L. Miller, of Providence, Rhode Island, was elected an Honorary member of the Society.

Voted, That Westford and Stowe be added to the towns constituting the Middlesex District.

Voted, To refer the letter of the N. H. Medical Society to the Committee on Publications.

Voted, That the Southern District Medical Society be authorized to hold their meetings either at New Bedford or Fall River.

The following letter was read in regard to the publications of the Sydenham Society.

BOSTON, MAY 30TH, 1848.

To the President of the Massachusetts Medical Society.

SIR,—I beg leave to address you for the purpose of soliciting the attention of the Fellows to the "*Sydenham Society*," instituted in London, England, A.D. 1843. The prospectus gives so clear an account of the nature and objects of the Society, that I here transcribe it at length:

"The Sydenham Society has been founded for the purpose of meeting certain deficiencies in the diffusion of medical literature, which are not likely to be supplied by the efforts of individuals. It will carry this object into effect by distributing among its members—

1st. Reprints of Standard English Medical Works, which are rare and expensive.

2d. Miscellaneous Selections from the Ancient and from the Earlier Modern Authors, reprinted or translated.

3d. Digests of the most Important Matters contained in Old and Voluminous Authors, British and Foreign, with occasional Biographical and Bibliographical Notices.

4th. Translations of the Greek and Latin Medical Authors, and of Works in the Arabic and other Eastern Languages, accompanied, when it is thought desirable, by the Original Text.

5th. Translations of Recent Foreign Works of merit.

6th. Original Works of great merit, which might be very valuable as books of reference, but which would not otherwise be published, from not being likely to have a remunerating sale,—such as Classified Bibliographies, and Alphabetical Indexes to Periodical Publications, and other valuable Voluminous Works.

The Society will consist of an unlimited number of members.

The subscription constituting a member, is one guinea annually, for which he will be entitled to a copy of every work printed by the Society, during the time of his subscription.

The subscriptions are to be paid in advance; and no member is responsible beyond the amount of his subscription.

All Works published by the Society will be selected by the Council; and, previous to publication, will be subjected to their supervision.

The Works of the Society will be printed for members only; on a uniform plan, and with good legible type.

The Society is under the direction of a Council of twenty-four members, elected at the annual general meeting from the subscribers at large; and of this number eighteen only will be re-eligible for the following year.

The President and Vice-President will also be selected annually.

As the expense of management will be very small, nearly the whole of the funds subscribed will be devoted to the publications; and as the proportion-

ate cost of producing books decreases as the number of copies increases, it is anticipated that, when the Society is fully organized, the annual supply of works to members will be considerable.

The great success that has attended other societies, established on similar principles, and with like objects,—as the CAMDEN, the PARKER, PIERCY, &c., leaves no room for doubt as to the eventual prosperity of the Sydenham Society. It would, indeed, be strange if medicine, which boasts of a literature more extensive than that of any other art or science, and of cultivators as numerous, zealous, and learned as any other department of human knowledge, should fail in attaining an end which has been so speedily and so fully accomplished by the societies referred to, and by others embracing even less comprehensive objects."

The Society now consists of about three thousand members,—the annual subscription in England being one guinea, paid in advance, the equivalent to which in American subscribers is *five* dollars, with the additional expenses of transmission and duty.

The officers and Council of the Sydenham Society are from among the most distinguished members of the profession in Great Britain, who have engaged in this enterprise for the sole object of benefitting the profession. Five years of experience in this undertaking gives us increased confidence in their ability, zeal, and faithfulness for the execution of their work.

It seems unnecessary to say any thing in commendation of the objects of the Society. By what it has already accomplished it fully commends itself, and it is only necessary, we judge, to make it known to the profession in order to receive their approbation. I will, however, add, that the members receive for their annual subscription, three or more volumes of standard works, of the utmost intrinsic value, and executed in the most beautiful style, and which would be sold, were they to be had in the shops, at more than double the cost to the members of the Society.

It is to be hoped that the general circulation of the works of the Sydenham Society, may create a relish for a higher and healthier medical literature than generally prevails among the members of our profession; and become a substitute for much of the periodical trash which constitutes the habitual reading of a large portion of medical men, than which nothing can be imagined less likely to advance sound medical knowledge, and improve good professional taste.

I take the liberty also of placing upon your table some of the volumes already issued, for the inspection of the Fellows of the Society.

I have the honor to be,
with sentiments of consideration,
Your obedient Servant,
RICHARD H. SALTER,
Hon. Local Sec.

During the five years that the Society has been established, the following works have been issued to the Members:

FOR THE FIRST YEAR, 1843-4.

HECKER'S *Epidemics of the Middle Ages*, one vol. 8vo, pp. 380.

LOUIS *on Phthisis*, one vol. 8vo, pp. 571.
TH. SYDENHAM *Opera Omnia*, one vol. 8vo, pp. 668.

FOR THE SECOND YEAR, 1844–5.

The Seven Books of PAULUS ÆGINETA, vol. I, pp. 683.
Observations on ANEURISM, one vol, 8vo, pp. 524.
SIMON'S *Animal Chemistry*, vol. I, 8vo, pp. 360, plate.

FOR THE THIRD YEAR, 1845–6.

SIMON'S *Animal Chemistry*, vol. II, 8vo, pp. 560, 2 plates.
PAULUS ÆGINETA, vol. II, 8vo, pp. 511.
HASSE'S *Pathology*, 8vo, pp. 400.

FOR THE FOURTH YEAR, 1846–7.

The Works of W. HEWSON, complete in one vol. 8vo, pp. 360-56, portrait, and 8 plates.
DUPUYTREN'S *Lectures on Diseases and Injuries of the Bones*, one vol. 8vo, pp. 459.
The Works of W. HARVEY, M. D., complete in one vol. 8vo, pp. 624–98.

FOR THE FIFTH YEAR, 1847–8.

A Treatise on *Medical Psychology*, by Dr. FEUCHTERSLEBEN, constituting a Systematic Introduction to the Study and Treatment of Mental Diseases.
A Volume of Memoirs on important *Surgical Diseases of the Head and Neck*, translated from the Memoirs of the French Academy of Surgery.
A Translation of SCHWANN and SCHLEIDEN'S Treatises on the *Intimate Structure of Animals and Vegetables*, containing the Original Exposition of the Cell-theory.
PAULUS ÆGINETA, vol. III, 8vo.

Drs. J. Homans and C. G. Putnam were nominated a Committee to transfer the funds of the Society, accounts, &c. from the late to the present Treasurer.

C. G. PUTNAM, *Rec. Sec.*

Officers of the Massachusetts Medical Society.

ELECTED JUNE 1, 1848.

JOHN WARE, *President.*
JOSEPH STONE, *Vice President.*
D. H. STORER, *Corresponding Secretary.*
C. G. PUTNAM, *Recording Secretary.*
AUGUSTUS A. GOULD, *Treasurer.*
MARTIN GAY, *Librarian.*

Censors. *For the Society at large, and the first Medical District*, George W. Otis, J. D. Fisher, Alexander Thomas, J. B. S. Jackson, John Flint.

For the second District, B. F. Heywood, Benjamin Pond, Joseph Sargent, J. G. Metcalf, William Workman.

For the third District, David Bemis, Jehiel Abbot, E. G. Ufford, S. B. Woodward, James Deane.

For the fourth District, H. H. Childs, Asa G. Welch, Robert Worthington, N. S. Babbitt, Corridon Guiteau.

For the fifth District, Alexander Read, Lyman Bartlett, Thos. Wilbur, John Perkins, Perez H. Doggett.

For the sixth District, Aaron Cornish, E. W. Carpenter, Thos. P. Jackson, George Atwood, J. Leonard.

Committee on Publications. O. W. Holmes, John Ware, Morrill Wyman.

Committee on Resignations. George W. Otis, Winslow Lewis, Jr., A. A. Gould.

Dr. Josiah Bartlett, of Concord, was chosen to deliver the next Annual Address.

Officers of District Medical Societies.

ELECTED, 1848.

Barnstable District Society. John Harpur, *President.* George Atwood, *Vice President.* Alexander Poole, *Secretary.* E. W. Carpenter, *Treasurer* and *Librarian.*

Berkshire. No return.

Essex North District Society. Benjamin Atkinson, *President.* David Mighill, *Vice President.* Martin Root, *Secretary.* Jeremiah Spofford, *Treasurer* and *Librarian.*

Essex South District Society. A. L. Peirson, *President.* George Choate, *Vice President.* Joseph Farnum, *Treasurer.* E. B. Peirson, *Librarian.* William Mack, *Secretary.*

Hampden District Society. Silas P. Wright, *President.* G.

B. Bridgman, *Vice President.* Thomas L. Chapman, *Secretary, Treasurer,* and *Librarian.*

Hampshire District Society. E. G. Ufford, *President.* Harvey Orcutt, *Vice President.* J. W. Smith, *Secretary.* C. A. Hall, *Treasurer.* James Thompson, *Librarian.*

Middlesex District Society. Elisha Huntington, *President.* J. C. Dalton, *Vice President.* J. P. Jewett, *Treasurer.* Joel Spalding, *Librarian,* Drs. Wells, Allen, and Morse, *Standing Committee.*

Southern District Society. Andrew Mackie, *President.* Foster Hooper, *Vice President.* Joseph Haskell, 2*d Vice President.* Samuel Sawyer, *Secretary.* William A. Gordon, *Treasurer* and *Librarian.*

Worcester District Society. William Workman, *President.* J. G. Metcalf, *Vice President.* James W. Robbins, *Secretary.* Benjamin Heywood, *Treasurer* and *Librarian.*

Committee on the Waldo Legacy. John Green, Edward Flint, William Workman.

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